AM-NX1

SERVICE MANUAL

AEP Model
UK Model
E Model

Ver 1.1 2003. 08

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Model Name Using Similar Mechanism	MZ-N910
Mechanism Type	MT-MZN910-181
Optical Pick-up Name	ABX-1R

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SPECIFICATIONS

Audio playing system
MiniDisc digital audio system

Laser diode properties
Material: GaAlAs
Wavelength: λ = 790 nm
Emission duration: continuous
Laser output: less than 44.6 W
(This output is the value measured at a distance of 200 mm from the lens surface on the optical pick-up block with 7 mm aperture.)

Recording and playback time (when using MDW-80)
Maximum 160 min. in monaural
Maximum 320 min. in LP4 stereo

Revolutions
350 rpm to 3,600 rpm (CLV)

Error correction
ACIRC (Advanced Cross Interleave Reed Solomon Code)

Sampling frequency
44.1 kHz

Coding
ATRAC (Adaptive TRansform Acoustic Coding)
ATRAC3 LP 2/LP4

Modulation system
EFM (Eight to Fourteen Modulation)

Frequency response
20 to 20,000 Hz – 3 dB

Outputs
🎧: stereo mini-jack (dedicated remote control jack)/194 mV (10 kΩ)

Maximum output (DC)
Headphones:
4 mW + 4 mW (16 Ω) (European models)
5 mW + 5 mW (16 Ω) (Other models)

Power requirements
Sony AC Power Adaptor connected at the DC IN 3V jack:
230 V AC, 50/60 Hz (Models for continental Europe)
230 V AC, 50 Hz (Model for U.K. and Hong Kong)
100-120 V 220-240 V AC, 50/60 Hz (Other models)
The recorder:
Nickel metal hydride rechargeable battery NH-14WM, 1.2 V, 1,350 mAh (MIN), Ni-MH
LR6 (size AA) alkaline battery
Battery charging stand:
AC power adaptor DC 3V

– Continued on next page –

PORTABLE MINIDISC RECORDER

9-961-029-02 **Sony Corporation**
2003H05-1 **Personal Audio Company**

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Battery operation time[1)]
The battery life may be shorter due to operating conditions, the temperature of the location, or the type of alkaline dry battery being used.

When playing
(Unit: approx.hours)(JEITA[2)])

Batteries	SP Stereo	LP2 Stereo	LP4 Stereo
Nickel metal hydride rechargeable battery[3)]	31	38	45
LR6 (SG) Sony alkaline dry battery[4)]	47	57	69
Nickel metal hydride rechargeable battery[3)] + One LR6 (SG)[4)]	80	95	114

1) Measured with the power save mode on (see "Preserving battery power (Power Save Mode)").
2) Measured in accordance with the JEITA (Japan Electronics and Information Technology Industries Association) standard.
3) When using a 100% fully charged nickel metal hydride rechargeable battery.
4) When using a Sony LR6 (SG) "STAMINA" alkaline dry battery (produced in Japan).

Dimensions
Approx. 78.9 × 72.2 × 17.2 mm (w/h/d)
(3 1/8 × 2 7/8 × 11/16 in.)
(excluding projecting parts and controls)

Mass
Approx. 85 g (3.0 oz) the recorder only
1)Measured in accordance with JEITA.

Supplied accessories
AC power adaptor (1)
Battery charging stand (1)
Headphones/earphones with a remote control (1)
Dedicated USB cable (1)
NH-14WM Nickel metal hydride rechargeable battery (1)
Battery carrying case (1)
Dry battery case (1)
CD-ROM (SonicStage Ver. 1.5) (1)*
Carrying pouch (1)
* Do not play a CD-ROM on an audio CD player.

Design and specifications are subject to change without notice.

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED LINE WITH MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

CAUTION
Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

Notes on chip component replacement
- Never reuse a disconnected chip component.
- Notice that the minus side of a tantalum capacitor may be damaged by heat.

Flexible Circuit Board Repairing
- Keep the temperature of the soldering iron around 270 ˚C during repairing.
- Do not touch the soldering iron on the same conductor of the circuit board (within 3 times).
- Be careful not to apply force on the conductor when soldering or unsoldering.

UNLEADED SOLDER
Boards requiring use of unleaded solder are printed with the lead-free mark (LF) indicating the solder contains no lead.
(Caution: Some printed circuit boards may not come printed with the lead free mark due to their particular size)

: LEAD FREE MARK
Unleaded solder has the following characteristics.
- Unleaded solder melts at a temperature about 40 ˚C higher than ordinary solder.
  Ordinary soldering irons can be used but the iron tip has to be applied to the solder joint for a slightly longer time.
  Soldering irons using a temperature regulator should be set to about 350 ˚C .
  Caution: The printed pattern (copper foil) may peel away if the heated tip is applied for too long, so be careful!
- Strong viscosity
  Unleaded solder is more viscous (sticky, less prone to flow) than ordinary solder so use caution not to let solder bridges occur such as on IC pins, etc.
- Usable with ordinary solder
  It is best to use only unleaded solder but unleaded solder may also be added to ordinary solder.

On power sources
- Use house current, nickel metal hydride rechargeable battery, LR6 (size AA) battery, or car battery.
- For use in your house: For the supplied battery charging stand, use the AC power adaptor supplied with this recorder. Do not use any other AC power adaptor since it may cause the recorder to malfunction.

Polarity of the plug

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SECTION 1
SERVICING NOTES

NOTES ON HANDLING THE OPTICAL PICK-UP BLOCK OR BASE UNIT

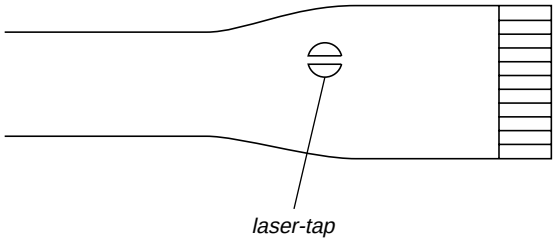
The laser diode in the optical pick-up block may suffer electrostatic break-down because of the potential difference generated by the charged electrostatic load, etc. on clothing and the human body.
During repair, pay attention to electrostatic break-down and also use the procedure in the printed matter which is included in the repair parts.
The flexible board is easily damaged and should be handled with care.

NOTES ON LASER DIODE EMISSION CHECK

Never look into the laser diode emission from right above when checking it for adjustment. It is feared that you will lose your sight.

NOTES ON HANDLING THE OPTICAL PICK-UP BLOCK (ABX-1R)

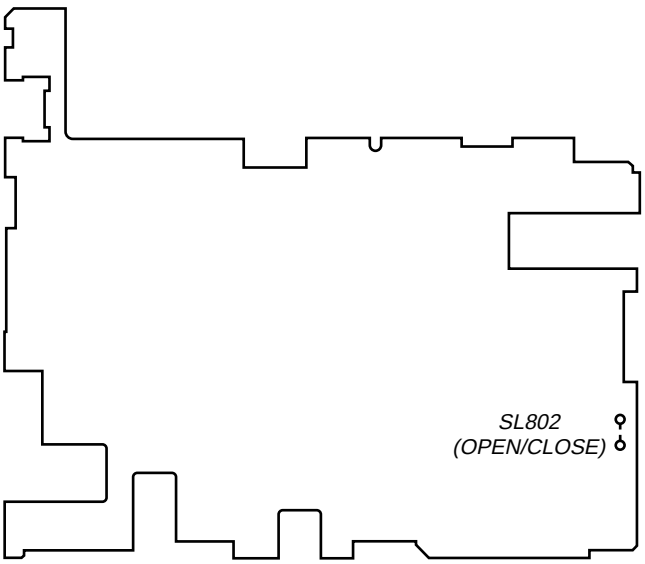
The laser diode in the optical pick-up block may suffer electrostatic break-down easily. When handling it, perform soldering bridge to the laser-tap on the flexible board. Also perform measures against electrostatic break-down sufficiently before the operation. The flexible board is easily damaged and should be handled with care.



OPTICAL PICK-UP FLEXIBLE BOARD

- In performing the repair with the power supplied to the set, removing the MAIN board causes the set to be disabled.
  In such a case, make a solder bridge to short SL802 (OPEN/CLOSE) on the MAIN board in advance.

– MAIN Board (Conductor Side) –



- The shipment data will be cleared when the NV is reset. Therefore, change the NV adjusted values following the Change of NV Adjusted Values immediately after the NV was reset. (See page 17)

- This set requires the patch data in the nonvolatile memory (IC851) to be rewritten using the application, when the MAIN board or nonvolatile memory (IC851) was replaced. (See page 28)

- Replacement of SN761058AZQLR (LC501) and CXD2680-207GA (IC801) used in this set requires a special tool.

System requirements

The following hardware and software are required in order to use the SonicStage software for the Net MD.

Computer	IBM PC/AT or Compatible
	• CPU: Pentium II 400 MHz or higher (Pentium III 450 MHz or higher is recommended.) • Hard disk drive space: 120 MB or more • RAM: 64 MB or more (128 MB or more is recommended)
	Others • CD-ROM drive (capable of digital playback by WDM) • Sound Board • USB port (supports USB (conventionally called USB 1.1))
Operating System	Factory installed: Windows XP Home Edition/Windows XP Professional/Windows Millennium Edition/Windows 2000 Professional/Windows 98 Second Edition
Display	High Color (16bit) or higher, 800 × 480 dots or better (800 × 600 dots or better is recommended)
Others	• Internet access: for EMD services and CD information services • Windows Media Player (version 7.0 or higher) installed for playing WMA files

This software is not supported by the following environments:

- Macintosh
- Windows XP versions other than Home Edition or Professional
- Windows 2000 versions other than Professional
- Windows 98 versions other than Second Edition
- Windows NT
- Windows 95
- Personally constructed PCs or operating systems
- An environment that is an upgrade of the original manufacturer-installed operating system
- Multi-boot environment
- Multi-monitor environment

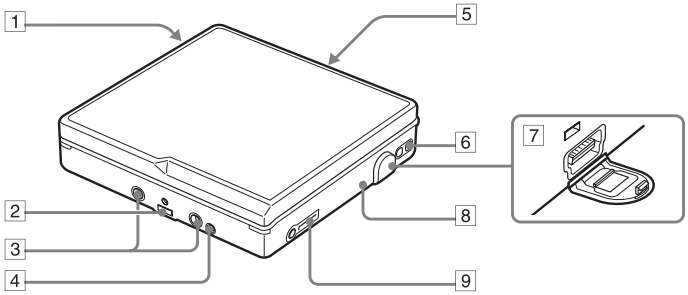
Notes

- We do not ensure trouble-free operation on all computers that satisfy the system requirements.
- We do not ensure trouble-free operation of the system suspend, sleep, or hibernation function on all computers.

SECTION 2
GENERAL

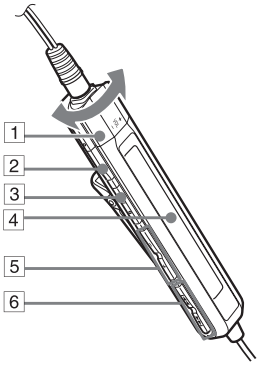
This section is extracted from instruction manual.

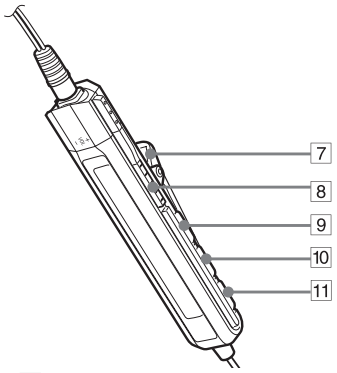
The recorder



1 Battery compartment
2 Terminals for attaching a battery charging stand
3 Terminals for attaching a dry battery case
4 DC IN 3V jack
5 OPEN switch
6 Handstrap hole
Use the hole to attach your own strap.
7 Dedicated USB cable connecting jack
8 CHARGE/DATA indicator
9 ∩ (headphones/earphones) jack

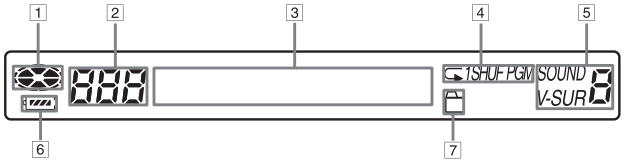
The headphones/earphones with a remote control





1 Volume control (VOL+, –)
Turn to adjust the volume.
2 ■ (stop) button
3 ►II/ENTER button: play, pause, enter
4 Display window
5 🗀 (group) +, –
6 ►►I: FF
I◄◄: REW
7 Clip
8 HOLD switch
Slide the switch in the direction of the arrow (a yellow mark appears) to disable the buttons on the remote control. To prevent the buttons from being accidentally operated when you carry the recorder, use this function.
9 SOUND button
10 DISPLAY button
11 P MODE/⊂ button

The display window of the remote control



1 Disc indication
2 Track number display
3 Character information display
4 Play mode indication
5 SOUND indication
6 Battery level indication
7 Group indication

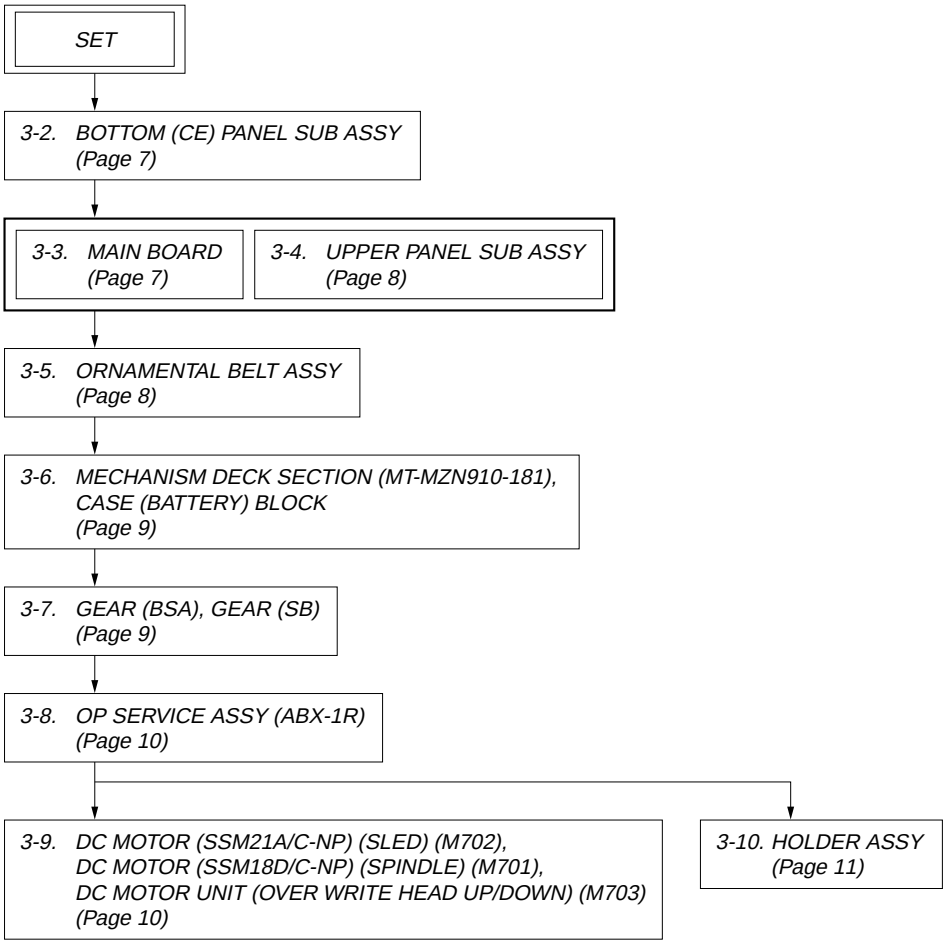
SECTION 3
DISASSEMBLY

• This set can be disassembled in the order shown below.

3-1. DISASSEMBLY FLOW

Note 1: *The process described in* ▣ *can be performed in any order.*

Note 2: *Without completing the process described in* ▣*, the next process can not be performed.*


SET
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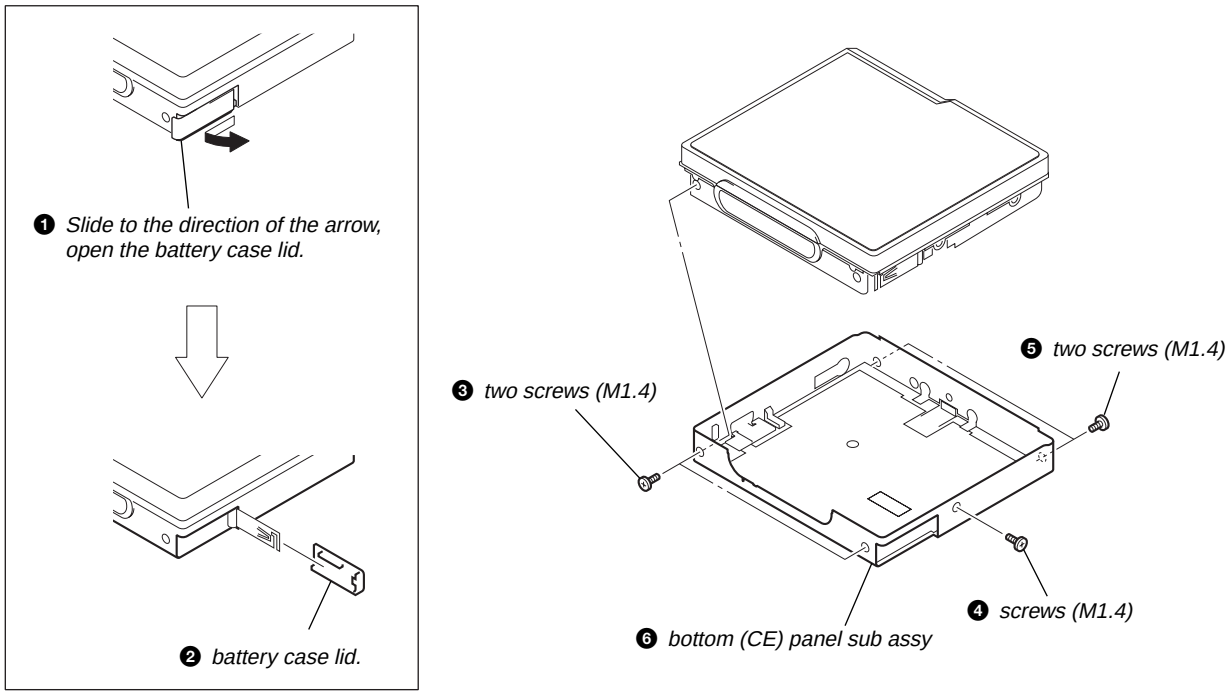
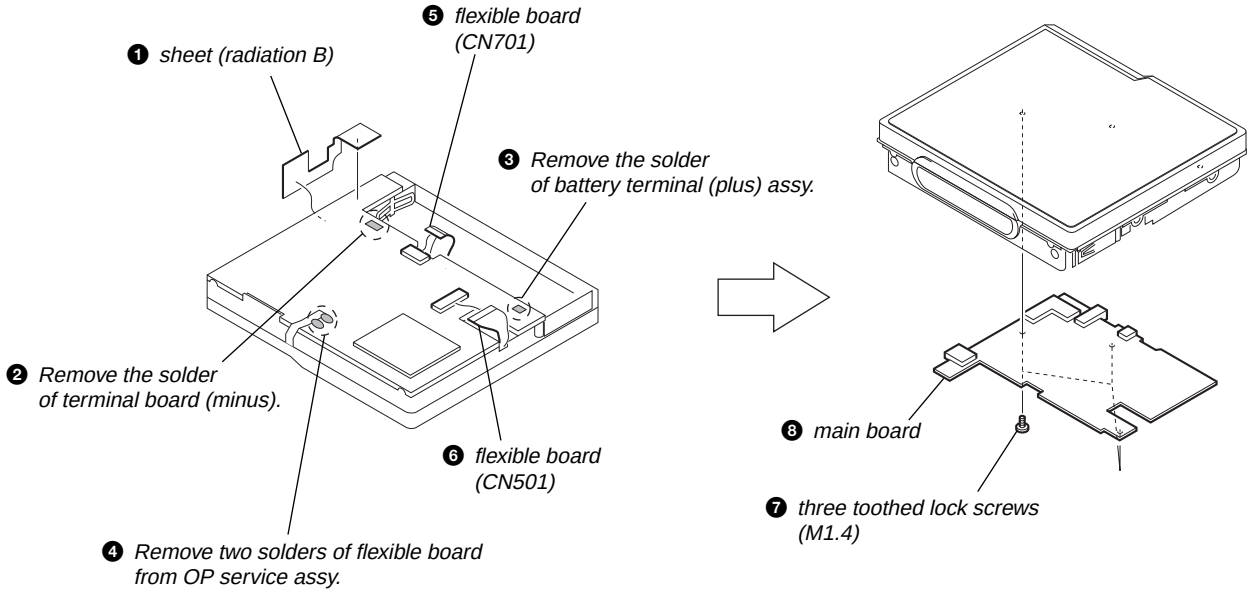
3-4. UPPER PANEL SUB ASSY (Page 8)
3-5. ORNAMENTAL BELT ASSY (Page 8)
3-6. MECHANISM DECK SECTION (MT-MZN910-181), CASE (BATTERY) BLOCK (Page 9)
3-7. GEAR (BSA), GEAR (SB) (Page 9)
3-8. OP SERVICE ASSY (ABX-1R) (Page 10)
3-9. DC MOTOR (SSM21A/C-NP) (SLED) (M702), DC MOTOR (SSM18D/C-NP) (SPINDLE) (M701), DC MOTOR UNIT (OVER WRITE HEAD UP/DOWN) (M703) (Page 10)
3-10. HOLDER ASSY (Page 11)

Note: Follow the disassembly procedure in the numerical order given.

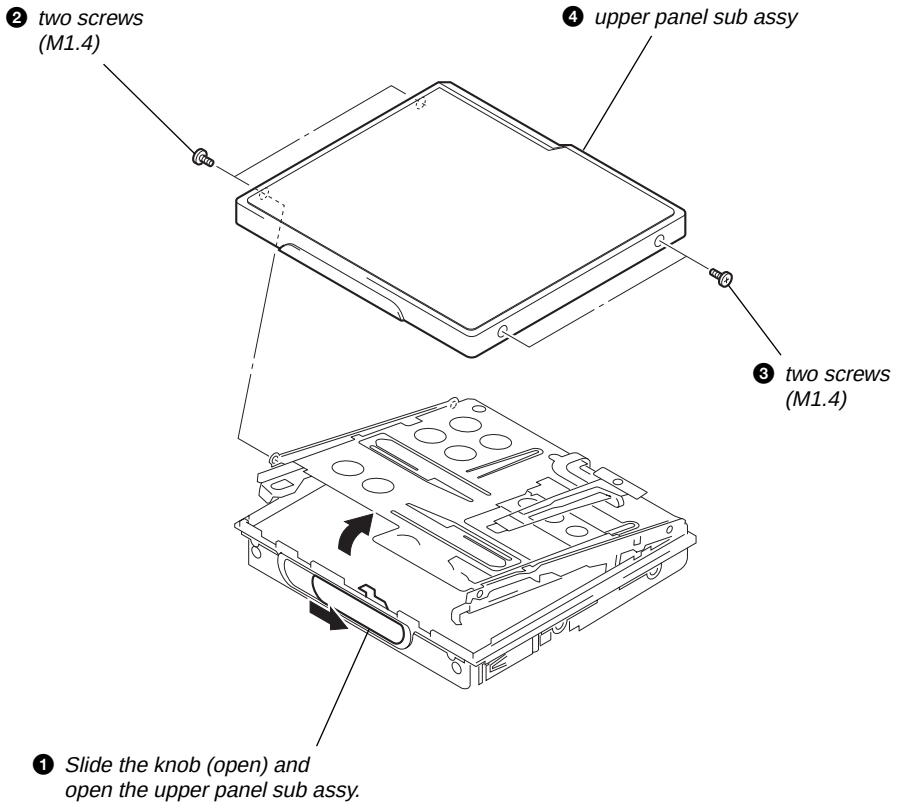
3-2. BOTTOM (CE) PANEL SUB ASSY


❶ Slide to the direction of the arrow, open the battery case lid.
❷ battery case lid.
❸ two screws (M1.4)
❹ screws (M1.4)
❺ two screws (M1.4)
❻ bottom (CE) panel sub assy

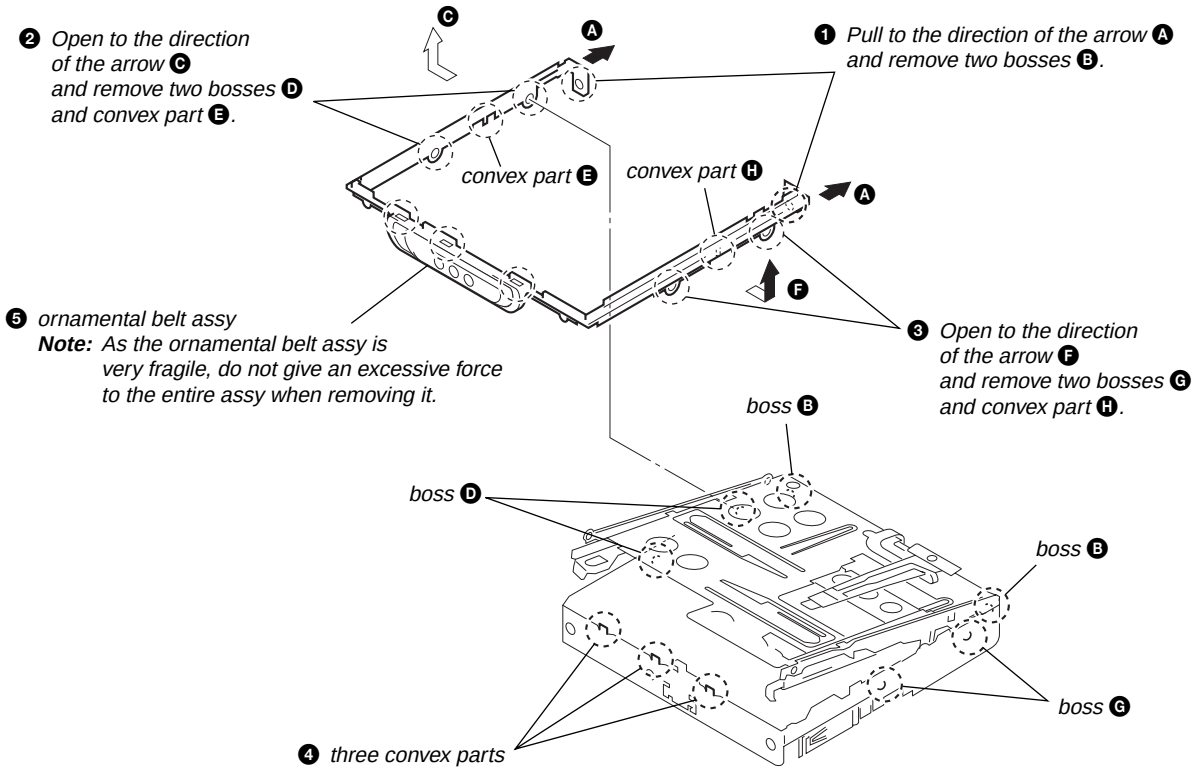
3-3. MAIN BOARD


❶ sheet (radiation B)
❷ Remove the solder of terminal board (minus).
❸ Remove the solder of battery terminal (plus) assy.
❹ Remove two solders of flexible board from OP service assy.
❺ flexible board (CN701)
❻ flexible board (CN501)
❼ three toothed lock screws (M1.4)
❽ main board

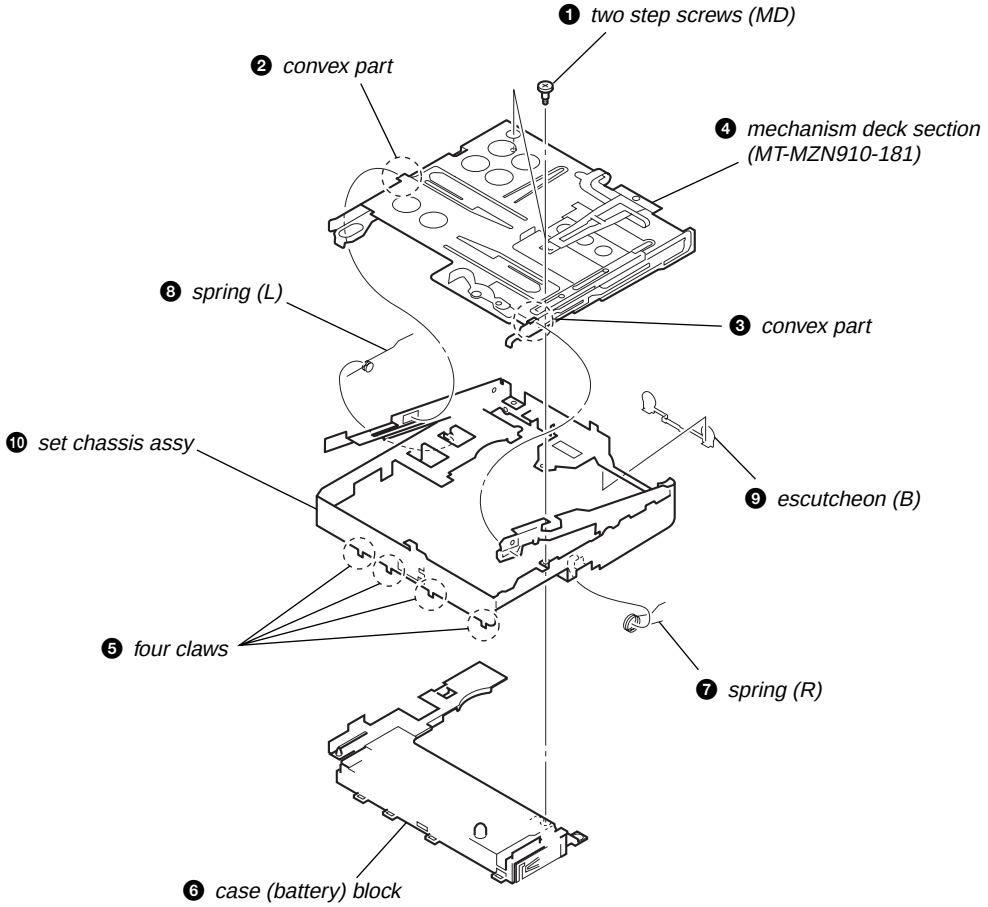
3-4. UPPER PANEL SUB ASSY



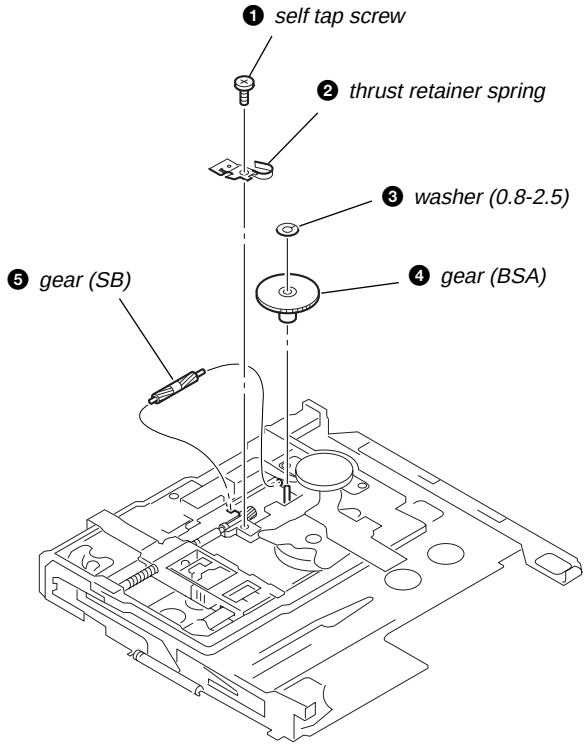
3-5. ORNAMENTAL BELT ASSY


❷ Open to the direction
of the arrow Ⓒ
and remove two bosses Ⓓ
and convex part Ⓔ.
❶ Pull to the direction of the arrow Ⓐ
and remove two bosses Ⓑ.
convex part Ⓔ
convex part Ⓗ
❺ ornamental belt assy
Note: As the ornamental belt assy is
very fragile, do not give an excessive force
to the entire assy when removing it.
❸ Open to the direction
of the arrow Ⓕ
and remove two bosses Ⓖ
and convex part Ⓗ.
boss Ⓑ
boss Ⓓ
boss Ⓑ
boss Ⓖ
❹ three convex parts

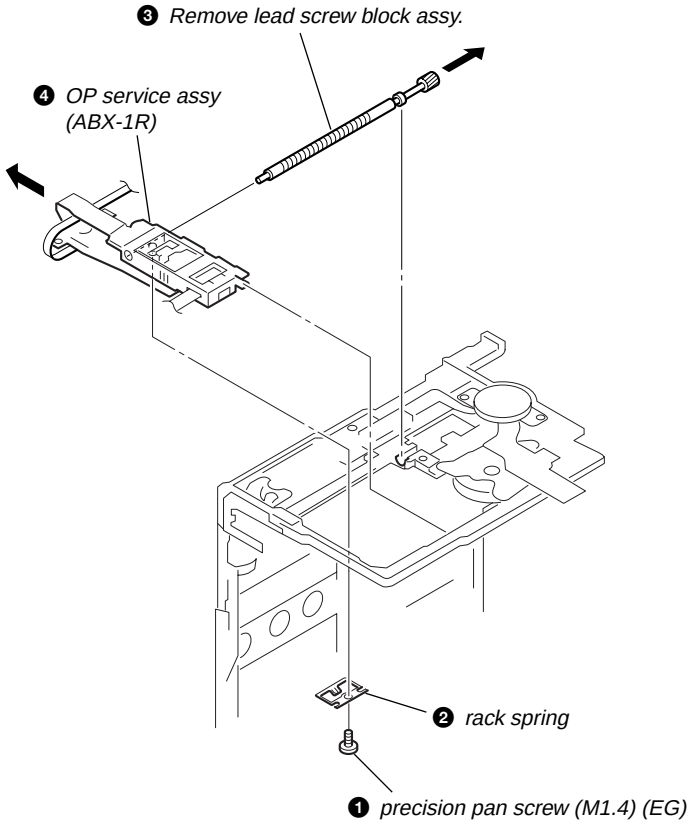
3-6. MECHANISM DECK SECTION (MT-MZN910-181), CASE (BATTERY) BLOCK



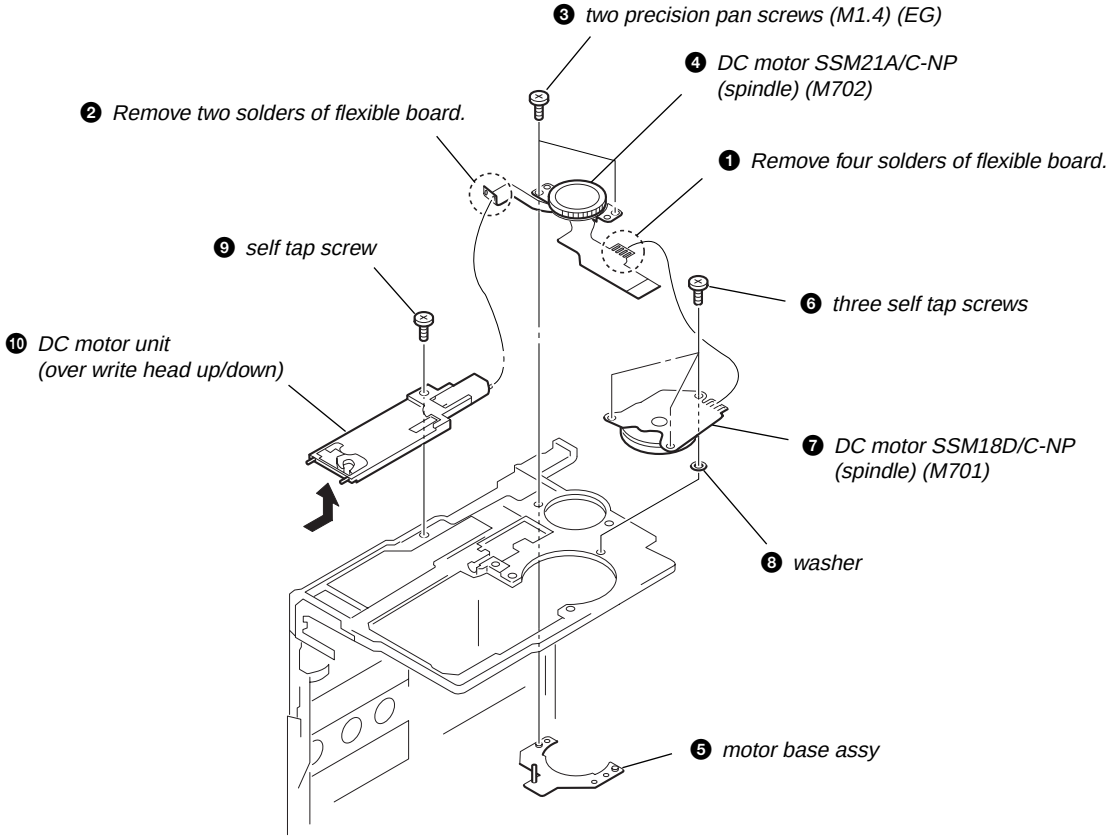
3-7. GEAR (BSA), GEAR (SB)



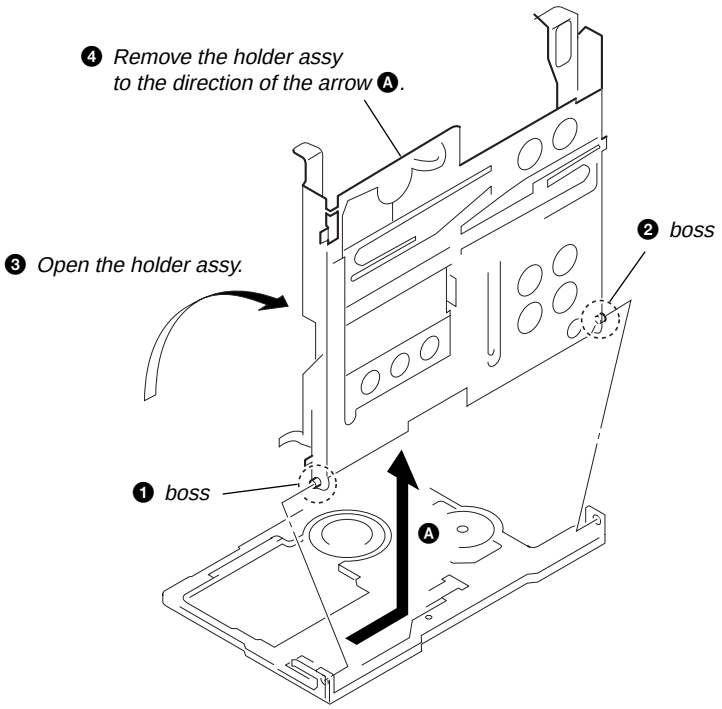
3-8. OP SERVICE ASSY (ABX-1R)



3-9. DC MOTOR SSM21A/C-NP (SLED) (M702), DC MOTOR SSM18D/C-NP (SPINDLE) (M701), DC MOTOR UNIT (OVER WRITE HEAD UP/DOWN) (M703)


❸ two precision pan screws (M1.4) (EG)
❹ DC motor SSM21A/C-NP (spindle) (M702)
❷ Remove two solders of flexible board.
❶ Remove four solders of flexible board.
❾ self tap screw
❻ three self tap screws
❿ DC motor unit (over write head up/down)
❼ DC motor SSM18D/C-NP (spindle) (M701)
❽ washer
❺ motor base assy

3-10. HOLDER ASSY



SECTION 4
TEST MODE

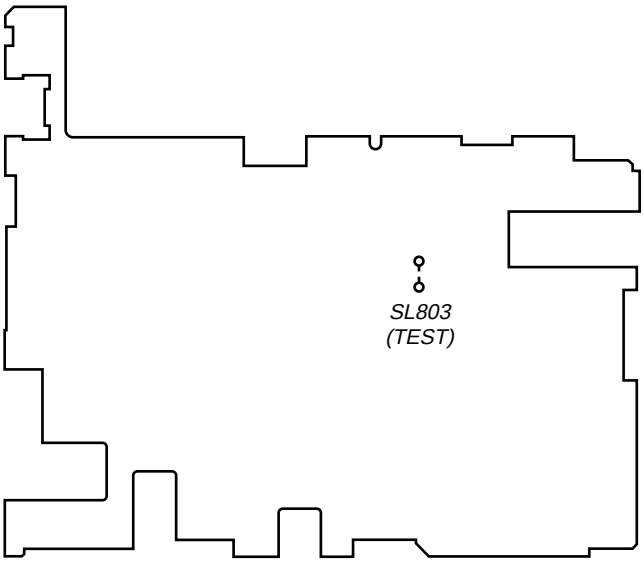
Outline

- This set provides the Overall adjustment mode that allows CD and MO discs to be automatically adjusted when in the test mode. In this overall adjustment mode, the disc is discriminated between CD and MO, and each adjustment is automatically executed in order. If a fault is found, the system displays its location. Also, the manual mode allows each individual adjustment to be automatically adjusted.
- Operation in the test mode is performed with the remote commander. A key having no particular description in the text, indicates a remote commander key.
- For the LCD display, the LCD on the remote commander is shown.

Setting Method of Test Mode

Short SL803 (TEST) on the MAIN board with a solder bridge (connect pin ⑫⑨. of IC801 to the ground). Then, turn on the power.

– MAIN Board (Conductor Side) –

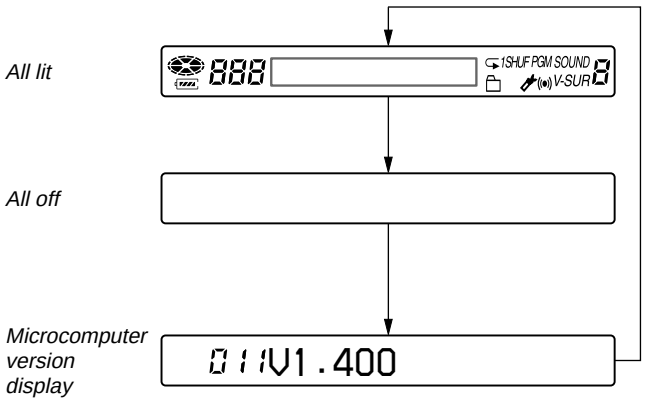


Note: If electrical adjustment (CD and MO overall adjustment) has not been finished completely, "ERROR" is displayed on LCD of the set.

Operation in Setting the Test Mode

- When the test mode becomes active, first the display check mode is selected.
- Other mode can be selected from the display check mode.
- When the test mode is set, the LCD repeats the following display.

LCD display

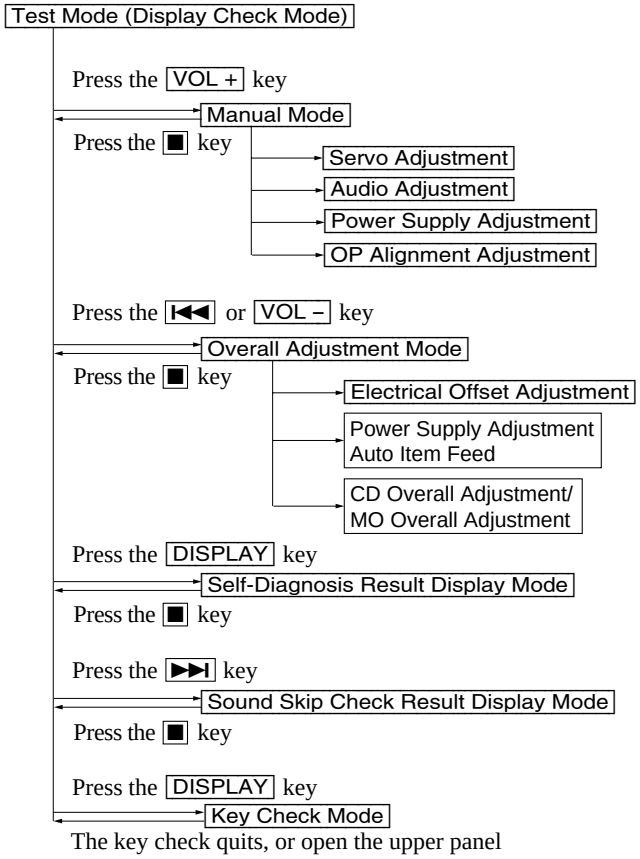


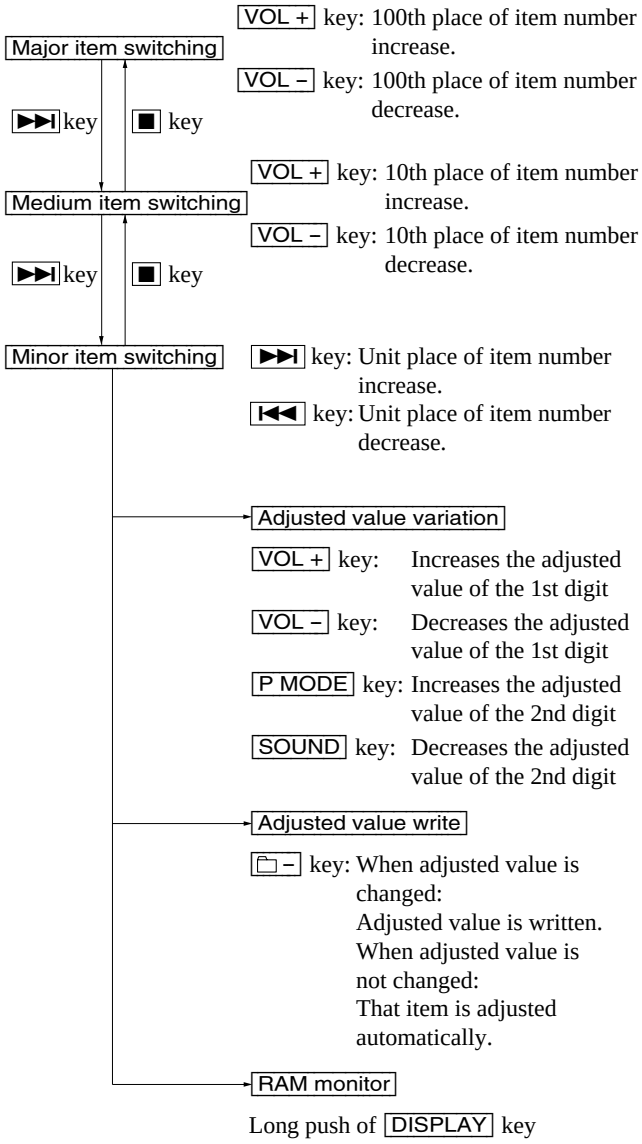
Releasing the Test Mode

Turn off the power and open the solder bridge on SL803 (TEST) on the MAIN board.

Note: Remove the solders completely. Remaining could be shorted with the chassis, etc.

Configuration of Test Mode




Major item switching
VOL + key: 100th place of item number increase.
VOL – key: 100th place of item number decrease.
►►I key
■ key
Medium item switching
VOL + key: 10th place of item number increase.
VOL – key: 10th place of item number decrease.
►►I key
■ key
Minor item switching
►►I key: Unit place of item number increase.
I◄◄ key: Unit place of item number decrease.
Adjusted value variation
VOL + key: Increases the adjusted value of the 1st digit
VOL – key: Decreases the adjusted value of the 1st digit
P MODE key: Increases the adjusted value of the 2nd digit
SOUND key: Decreases the adjusted value of the 2nd digit
Adjusted value write
– key: When adjusted value is changed:
Adjusted value is written.
When adjusted value is not changed:
That item is adjusted automatically.
RAM monitor
Long push of DISPLAY key

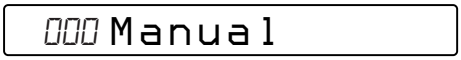
Manual Mode

Mode to adjust or check the operation of the set by function.
Normally, the adjustment in this mode is not executed.
However, the Manual mode is used to clear the memory, power supply adjustment, and laser power check before performing automatic adjustments in the Overall Adjustment mode.

• Transition Method in Manual Mode

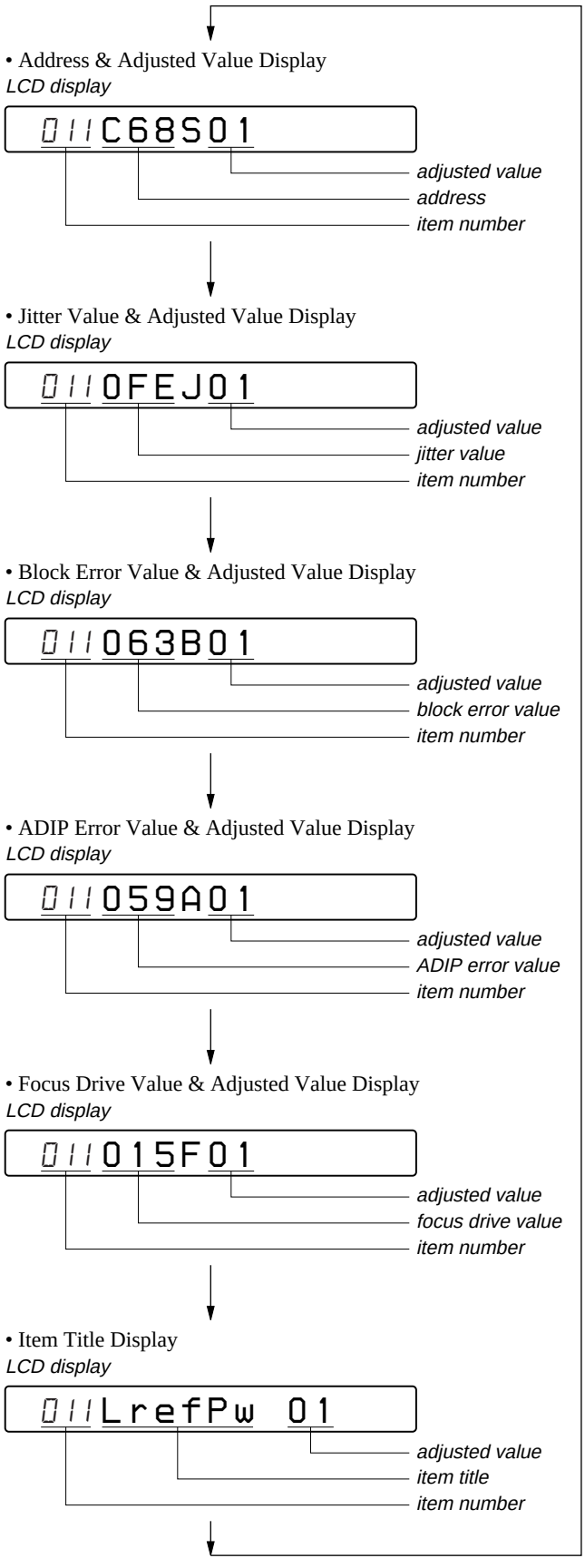
1. Set the test mode (see page 12).
2. Press the VOL + to activate the manual mode where the LCD display as shown below.

LCD display



3. During each test, the optical pick-up moves outward or inward while the ►►I or I◄◄ key is pressed for several seconds respectively.
4. Each test item is assigned with a 3-digit item number;
   100th place is a major item, 10th place is a medium item, and unit place is a minor item.
   The values adjusted in the test mode are written to the non-volatile memory (for the items where adjustment was made).

5. The display changes a shown below each time the DISPLAY key is pressed.



However in the power mode (item number 700's), only the item is displayed.

6. Quit the manual mode, and press the ■ key to return to the test mode (display check mode).

Overall Adjustment Mode

Mode to adjust the servo automatically in all items.
Normally, automatic adjustment is executed in this mode at the repair.
For further information, refer to "SECTION 5 ELECTRICAL ADJUSTMENTS" (see page 17).

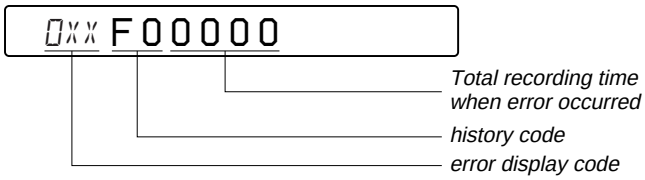
Self-Diagnosis Result Display Mode

This set uses the self-diagnostic function system in which if an error occurred during the recording or playing, the mechanism control block and the power supply control block in the microcomputer detect it and record its cause as history in the nonvolatile memory.
By checking this history in the test mode, you can analyze a fault and determine its location.
Total recording time is recorded as a guideline of how long the optical pick-up has been used, and by comparing it with the total recording time at the time when an error occurred in the self-diagnosis result display mode, you can determine when the error occurred.
Clear both self-diagnosis history data and total recording time, if the optical pick-up was replaced.

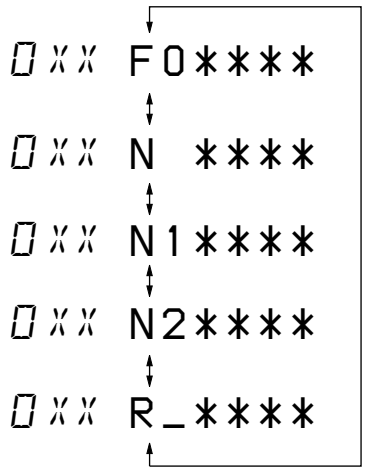
• Self-Diagnosis Result Display Mode Setting Method

1. Set the test mode (see page 12).
2. In the display check mode, press the DISPLAY key activates the self-diagnosis result display mode where the LCD display as shown below.

LCD display



3. Then, each time the ▶▶| key is pressed, LCD display descends by one as shown below. Also, the LCD display ascends by one when the |◀◀ key is pressed.



xx : Error code
***** : Total recording time*

If the DISPLAY key is pressed with this display, the LCD switches to the simple display mode.

4. Quit the self-diagnosis result display mode, and press the ■ key to return to the test mode (display check mode).

• Description of Error Indication Codes

Problem	Indication code	Meaning of code	Simple display	Description
No error	00	No error	---	No error
Servo system error	01	Illegal access target address was specified	Adrs	Attempt to access an abnormal address
	02	High temperature	Temp	High temperature detected
	03	Focus error	Fcus	Disordered focus or can not read an address
	04	Spindle error	Spdl	Abnormal rotation of disc
TOC error	11	TOC error	TOC	Faulty TOC contents
	12	Data reading error	Data	Data could not be read at SYNC
	13	TOC address error	Tadr	TOC address data error
Power supply system error	22	Low battery	LBat	Momentary interruption detected
Offset system error	31	Offset error	Ofst	Offset error
	32	Focus error ABCD offset error	ABCD	Focus error ABCD offset error
	33	Tracking error Offset error	TE	Tracking error Offset error
	34	X1 tracking error Offset error	X1TE	X1 tracking error Offset error
	35	MD DATA 2 disc error	MD2	MD DATA 2 disc error
	36	Mirror error	Mirr	Mirror retry over

• Description of Indication History

History code number	Description
F0	The first error
N	The last error
N1	One error before the last.
N2	Two errors before the last.
R_	Total recording time

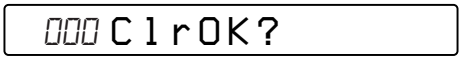
Reset the Error Display Code

After servicing, reset the error display code.

• Setting Method of Reset the Error Display Code

1. Set the test mode (see page 12).
2. Press the DISPLAY key activates the self-diagnosis result display mode.
3. To reset the error display code, press the [□ –] key (twice) when the code is displayed (except "R_✱✱✱✱").

LCD display (key 1st time)



LCD display (key 2nd time)

(All the data on the 1, N, N1, and N2 will be reset)

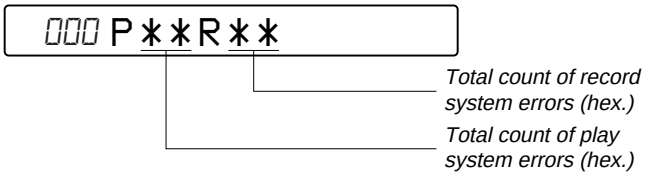
Sound Skip Check Result Display Mode

This set can display the count of errors that occurred during the recording/playing for checking.

• Setting Method of Sound Skip Check Result Display Mode

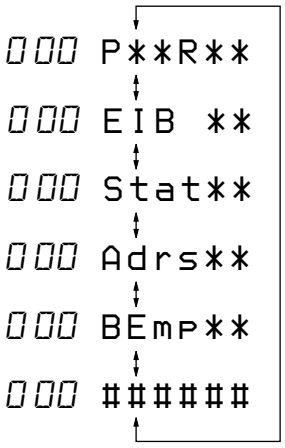
1. Set the test mode (see page 12).
2. Press the [▶▶I] key and the playing or recording sound skip result display mode becomes active respectively where the LCD displays the following.

LCD display



3. When the [►] key is pressed, total error count is displayed on the LCD, and each time the [▶▶I] key is pressed, the display item moves down by one as shown below. Also, if the [I◀◀] key is pressed, the display item moves up by one.

Playing sound skip result display



P**R** *: Total play/record errors (hex.)*
** *: Counter of sound skip check each item (hex.)*
: 6-digit address where sound was skipped last (hex.)

• Cause of Sound Skip Error

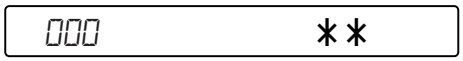
	Cause of error	Description of error
Play	EIB	Sound error correction error
	Stat	Decoder status error
	Adrs	Address access error
	BEmp	Buffer is empty

4. To quit the sound skip check result display mode and to return to the test mode (display check mode), press the [■] key.

• Setting Method of Key Check Mode

1. Set the test mode (see page 12).
2. Press the [DISPLAY] key for about 3 seconds activates the key check mode and display as below.

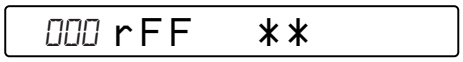
LCD display



**: value of key (hexadecimal 00 to FF)*

3. When each key on the set is pressed, its name is displayed on the LCD.

Example1: When the [▶▶I] key on the set is pressed:
LCD display



**: value of key (hexadecimal 00 to FF)*

4. When all keys were checked, display as below.

LCD display

**: value of key (hexadecimal 00 to FF)*

5. If the upper panel is opened, the key check mode quits and the test mode (display check mode) comes back.

SECTION 5
ELECTRICAL ADJUSTMENTS

Outline

- In this set, automatic adjustment of CD and MO can be performed by entering the test mode.
  However, before starting automatic adjustment, the memory clear, power supply adjustment and laser power check must be performed in the manual mode.
- Operation in the test mode is performed with the remote commander. A key having no particular description in the text, indicates a remote commander key.
- For the LCD display, the LCD on the remote commander is shown.

Precautions for Adjustment

1. Adjustment must be done in the test mode only.
   After adjusting, release the test mode.
2. Use the following tools and measuring instruments.
   - Test CD disc TDYS-1
     (Part No. : 4-963-646-01)
   - SONY MO disc available on the market
   - Digital voltmeter
   - Laser power meter LPM-8001
     (Part No. : J-2501-046-A)
   - Thermometer (using the Temperature Correction)
   - Personal computer
   - USB cable
3. Unless specified otherwise, supply DC 1.5V from battery terminals.
4. Switch position
   HOLD switch ..... ON

Adjustment Sequence

1. NV Reset (item number: 021)
   (EEPROM clear*)
   ↓
2. Temperature Correction (item number: 015)
   ↓
3. Power Supply Manual Adjustment
   (item number: 741 to 756)
   ↓
4. Laser Power Check
   ↓
5. Adjustment Required Before Overall
   Adjustment (item number: 865, 866)

   } Manual Mode

   ↓
6. CD Overall Adjustment (item number: 031)
   ↓
7. MO Overall Adjustment (item number: 034)

   } Overall Mode

   ↓
8. RESUME Clear (item number 043)

   } Manual Mode

   ↓
9. Rewriting the Patch Data
   (at replacement of the MAIN board)
   ↓
10. Rewriting the NV values

* Although an adjustment value performed by power supply adjustment and electric offset adjustment is not cleared by NV reset, in the NV reset 2, all NV data is cleared and the value of NV returns to a default.

NV Reset

• Setting Method of NV Reset

1. Select the manual mode of the test mode, and set item number 021 NV Reset (see page 13).

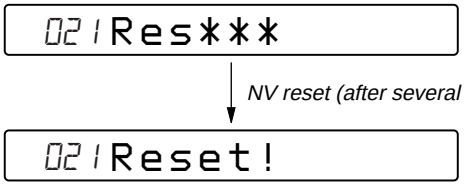
   LCD display

2. Press the [🗀 –] key.

   LCD display

3. Press the [🗀 –] key once more.

   LCD display

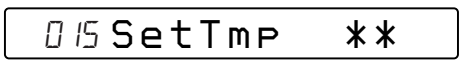
4. Press the [■] key to quit the manual mode, and return to the test mode (display check mode).

Temparature Correction

• Adjustment Method of Temperature Correction

1. Select the manual mode of the test mode, and set the item number 015 (see page 13).

   LCD display

   ***: adjusted value*

2. Measure the ambient temperature.
3. Adjust with [VOL +] or [VOL –] key so that the adjusted value (hexadecimal value) becomes the ambient temperature.
   (Initial value : 19h = 25˚C, Adjusting range : 80h to 7fh (–128˚C to +127˚C))
4. Press the [🗀 –] key to write the adjusted value.
5. Press the [■] key to quit the manual mode, and return to the test mode (display check mode).

Power Supply Manual Adjustment

- **Adjustment sequence**

Adjustment must be done with the following steps.

1. VC1_LOW adjustment (item number : 741)
2. VC1_HIGH adjustment (item number : 742)
3. VC2_LOW adjustment (item number : 743)
4. VC2_HIGH adjustment (item number : 744)
5. REG1 adjustment (item number : 745)
6. REG2 adjustment (item number : 746)
7. REG3_LOW (VC2_LOW) adjustment (item number : 747)
8. REG3_LOW (VC2_HIGH) adjustment (item number : 748)
9. REG3_HIGH adjustment (item number : 749)
10. VREC_LOW adjustment (item number : 751)
11. VREC_MIDDLE adjustment (item number : 752)
12. VREC_HIGH adjustment (item number : 753)
13. ChgV_L adjustment (item number : 755)
14. ChgV_H adjustment (item number : 756)
15. ChgI_L adjustment (item number : 755)
16. ChgI_H adjustment (item number : 756)

- **Setting Method of Power Supply Manual Adjustment**

1. Make sure that the power supply voltage is 3V (AC adapter).
2. Select the manual mode of the test mode (see page 13).
3. Set item number.

Note: Power supply adjustment auto item feed mode (page 23) is available to perform the temperature Correction and Power Supply Adjustment without entering the manual mode.

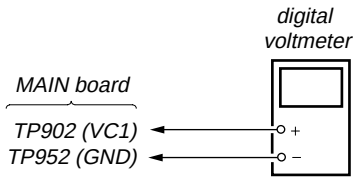
- **Adjustment Method of VC1_LOW (item number: 741)**

LCD display

741 VC1 L **

**: adjusted value*

1. Connect a digital voltmeter to the TP902 (VC1) on the MAIN board, and adjust [VOL +] key (voltage up) or [VOL –] key (voltage down) so that the voltage becomes 2.35 ± 0.005V.



2. Press the [📁 –] key to write the adjusted value.

Adjustment and Connection Location: MAIN board (see page 22)

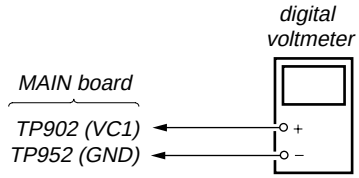
- **Adjustment Method of VC1_HIGH (item number: 742)**

LCD display

742 VC1 H **

**: adjusted value*

1. Connect a digital voltmeter to the TP902 (VC1) on the MAIN board, and adjust [VOL +] key (voltage up) or [VOL –] key (voltage down) so that the voltage becomes 2.75 ± 0.005V.



2. Press the [📁 –] key to write the adjusted value.

Adjustment and Connection Location: MAIN board (see page 22)

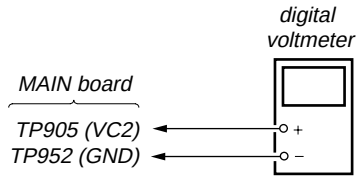
- **Adjustment Method of VC2_LOW (item number: 743)**

LCD display

743 VC2 Lo **

**: adjusted value*

1. Connect a digital voltmeter to the TP905 (VC2) on the MAIN board, and adjust [VOL +] key (voltage up) or [VOL –] key (voltage down) so that the voltage becomes 1.30 ± 0.005V.



2. Press the [📁 –] key to write the adjusted value.

Adjustment and Connection Location: MAIN board (see page 22)

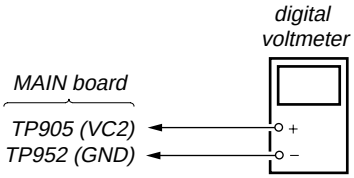
- **Adjustment Method of VC2_HIGH (item number: 744)**

LCD display

744 VC2 Hi **

**: adjusted value*

1. Connect a digital voltmeter to the TP905 (VC2) on the MAIN board, and adjust [VOL +] key (voltage up) or [VOL –] key (voltage down) so that the voltage becomes 2.55 ± 0.005V.



2. Press the [🗀 –] key to write the adjusted value.

Adjustment and Connection Location: MAIN board (see page 22)

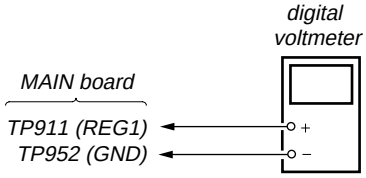
- **Adjustment Method of REG1 (item number: 745)**

LCD display

745 REG1 **

**: adjusted value*

1. Connect a digital voltmeter to the TP911 (REG1) on the MAIN board, and adjust [VOL +] key (voltage up) or [VOL –] key (voltage down) so that the voltage becomes 2.15 $^{+0.01}_{-0.005}$ V.



2. Press the [🗀 –] key to write the adjusted value.

Adjustment and Connection Location: MAIN board (see page 22)

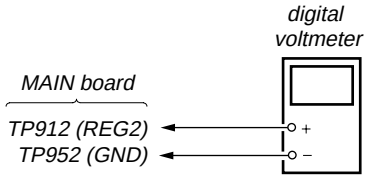
- **Adjustment Method of REG2 (item number: 746)**

LCD display

746 REG2 **

**: adjusted value*

1. Connect a digital voltmeter to the TP912 (REG2) on the MAIN board, and adjust [VOL +] key (voltage up) or [VOL –] key (voltage down) so that the voltage becomes 2.2 $^{+0.01}_{-0.005}$ V.



2. Press the [🗀 –] key to write the adjusted value.

Adjustment and Connection Location: MAIN board (see page 22)

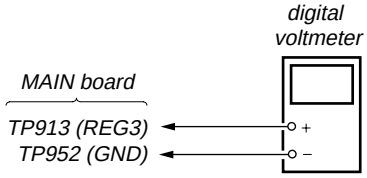
- **Adjustment Method of REG3_LOW (VC2_LOW) (item number: 747)**

LCD display

747 REG3L1 **

**: adjusted value*

1. Connect a digital voltmeter to the TP913 (REG3) on the MAIN board, and adjust [VOL +] key (voltage up) or [VOL –] key (voltage down) so that the voltage becomes 1.20 ± 0.005V.



2. Press the [🗀 –] key to write the adjusted value.

Adjustment and Connection Location: MAIN board (see page 22)

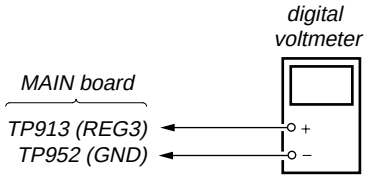
- **Adjustment Method of REG3_LOW (VC2_HIGH) (item number: 748)**

LCD display

748 REG3L2 **

**: adjusted value*

1. Connect a digital voltmeter to the TP913 (REG3) on the MAIN board, and adjust [VOL +] key (voltage up) or [VOL –] key (voltage down) so that the voltage becomes 1.20 ± 0.005V.



2. Press the [🗀 –] key to write the adjusted value.

Adjustment and Connection Location: MAIN board (see page 22)

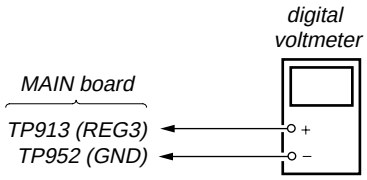
- **Adjustment Method of REG3_HIGH (item number: 749)**

LCD display

749 REG3 H **

**: adjusted value*

1. Connect a digital voltmeter to the TP913 (REG3) on the MAIN board, and adjust [VOL +] key (voltage up) or [VOL –] key (voltage down) so that the voltage becomes 1.55 ± 0.005V.



2. Press the [🗀 –] key to write the adjusted value.

Adjustment and Connection Location: MAIN board (see page 22)

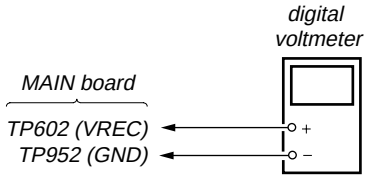
- **Adjustment Method of VREC_LOW (item number: 751)**

LCD display

751 VREC L **

**: adjusted value*

1. Connect a digital voltmeter to the TP602 (VREC) on the MAIN board, and adjust [VOL +] key (voltage up) or [VOL –] key (voltage down) so that the voltage becomes 1.12 $^{+0.025}_{-0.01}$ V.



2. Press the [🗀 –] key to write the adjusted value.

Adjustment and Connection Location: MAIN board (see page 22)

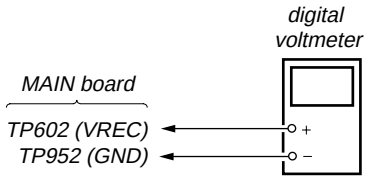
- **Adjustment Method of VREC_MIDDLE (item number: 752)**

LCD display

752 VREC M **

**: adjusted value*

1. Connect a digital voltmeter to the TP602 (VREC) on the MAIN board, and adjust [VOL +] key (voltage up) or [VOL –] key (voltage down) so that the voltage becomes 1.22 $^{+0.025}_{-0.01}$ V.



2. Press the [🗀 –] key to write the adjusted value.

Adjustment and Connection Location: MAIN board (see page 22)

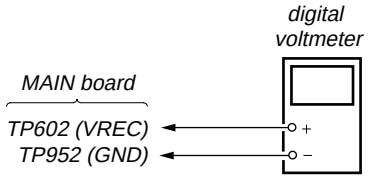
- **Adjustment Method of VREC_HIGH (item number: 753)**

LCD display

753 VREC H **

**: adjusted value*

1. Connect a digital voltmeter to the TP602 (VREC) on the MAIN board, and adjust [VOL +] key (voltage up) or [VOL –] key (voltage down) so that the voltage becomes 1.52 $^{+0.06}_{-0.01}$ V.



2. Press the [🗀 –] key to write the adjusted value.

Adjustment and Connection Location: MAIN board (see page 22)

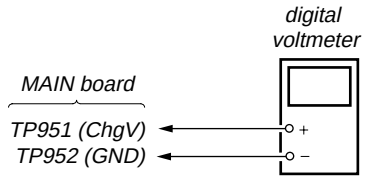
- **Adjustment Method of ChgV_L (item number: 755)**

LCD display

755 ChgV L **

**: adjusted value*

1. Connect a digital voltmeter to the TP951 (ChgV) on the MAIN board, and adjust [VOL +] key (voltage up) or [VOL –] key (voltage down) so that the voltage becomes 1.35 ± 0.01V.



2. Press the [🗀 –] key to write the adjusted value.

Adjustment and Connection Location: MAIN board (see page 22)

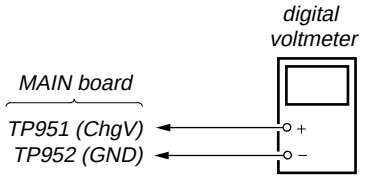
- **Adjustment Method of ChgV_H (item number: 756)**

LCD display

756 ChgV H **

**: adjusted value*

1. Connect a digital voltmeter to the TP951 (ChgV) on the MAIN board, and adjust [VOL +] key (voltage up) or [VOL –] key (voltage down) so that the voltage becomes 1.80 ± 0.01V.



2. Press the [🗀 –] key to write the adjusted value.

Adjustment and Connection Location: MAIN board (see page 22)

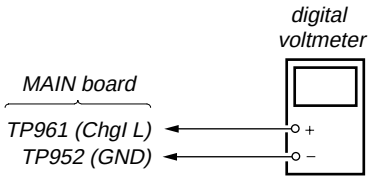
- **Adjustment Method of ChgI_L (item number: 757)**

LCD display

757 CIL **

**: adjusted value*

1. In the state of power off, short SL951 on the MAIN board with a solder bridge. Then, turn on the power.
2. Connect a digital voltmeter to the TP961 (ChgI L) on the MAIN board, and adjust [VOL +] key (voltage up) or [VOL –] key (voltage down) so that the voltage becomes 1.41 ± 0.01V.

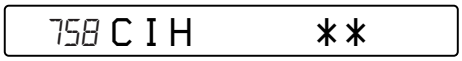


3. Press the [🗀 –] key to write the adjusted value.
4. After adjustment, turn off the power and open the solder bridge on SL951 on the MAIN board.

Adjustment and Connection Location: MAIN board (see page 22)

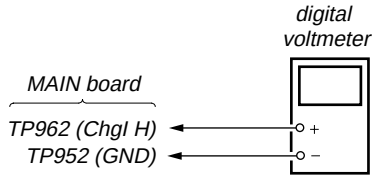
- **Adjustment Method of ChgI_H (item number: 758)**

LCD display



**: adjusted value*

1. In the state of power off, short SL952 on the MAIN board with a solder bridge. Then, turn on the power.
2. Connect a digital voltmeter to the TP962 (ChgI H) on the MAIN board, and adjust [VOL +] key (voltage up) or [VOL –] key (voltage down) so that the voltage becomes 1.40 ± 0.01V.

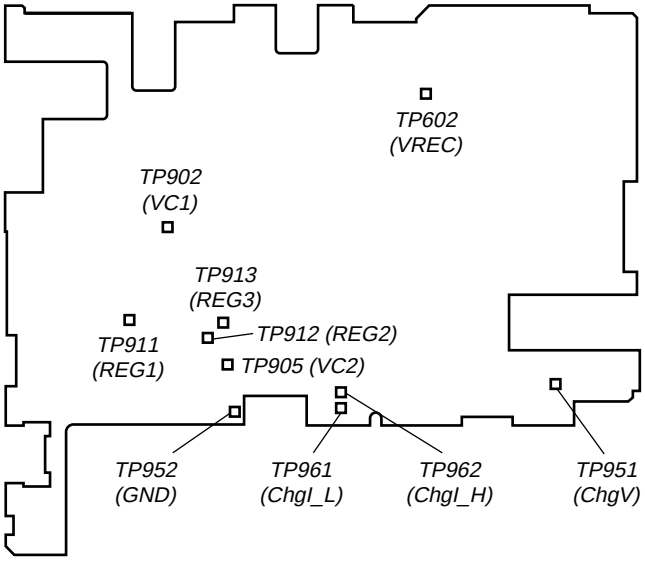


3. Press the [📁 –] key to write the adjusted value.
4. After adjustment, turn off the power and open the solder bridge on SL952 on the MAIN board.

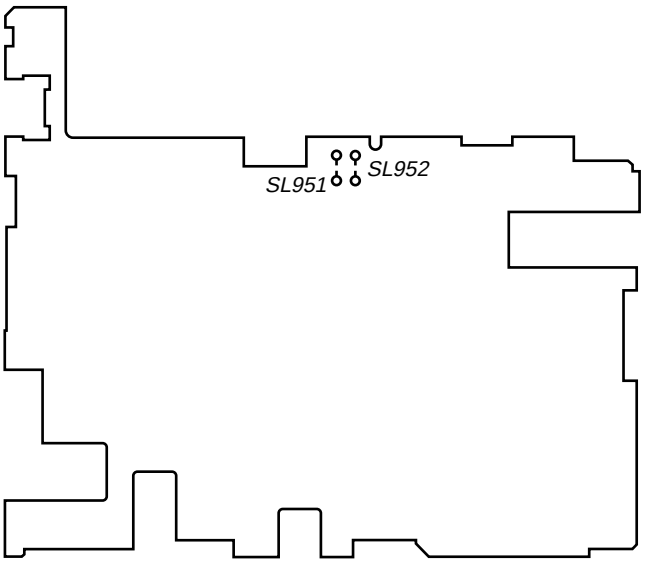
Adjustment and Connection Location: MAIN board (see page 22)

Adjustment and Connection Location:

– MAIN Board (Component Side) –



– MAIN Board (Conductor Side) –



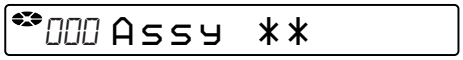
Power Supply Adjustment Auto Item Feed

Note: This mode is available to perform the temperature correction and power supply adjustment without entering the manual mode.

• Setting method of power supply adjustment auto item feed mode.

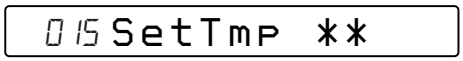
1. Set the test mode (see page 12)
2. Press the [VOL –] key to activate the overall adjustment mode.

LCD display



3. Press the [P MODE] key to set the temperature correction mode.

LCD display



4. To change the initial value adjust with the [VOL +] or [VOL –] key.
   Press the [II] key to write the adjusted value, and the item number increases automatically.
   When not writing the adjusted value, press the [▶▶I] key to move to the next item.

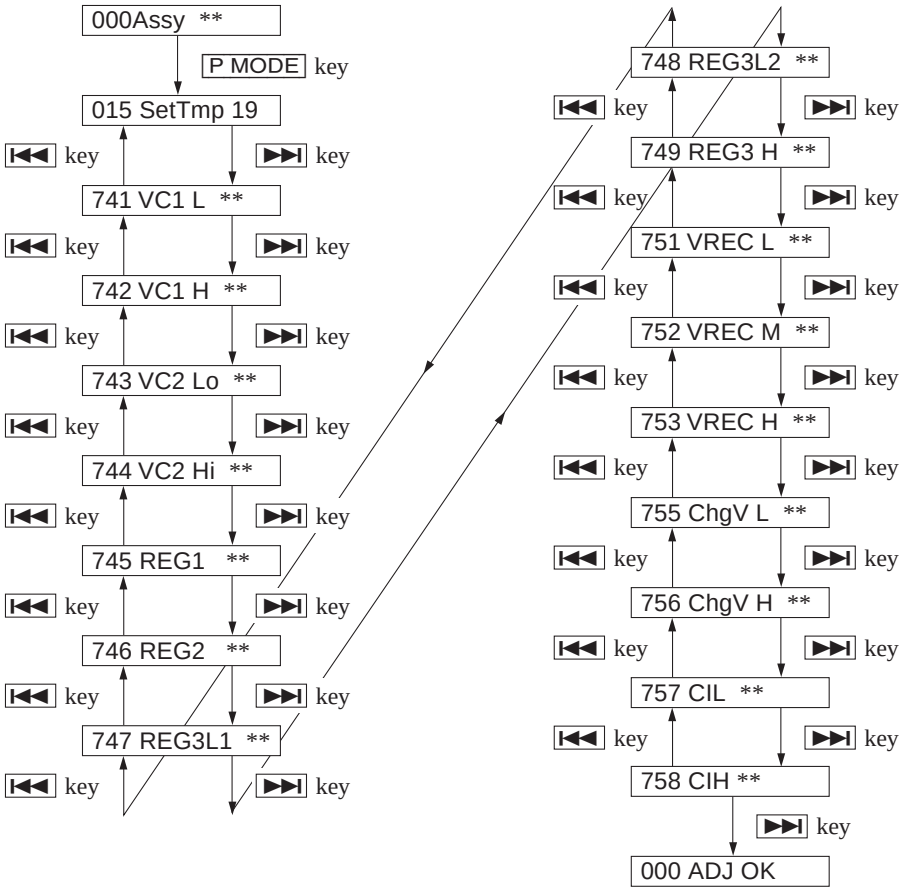
LCD display

5. Connect a digital voltmeter to the measuring points on the MAIN board, and adjust the voltage with the [VOL +] or [VOL –] key. (see page 17 to 22)
   Press the [II] key to write the adjusted value, and the item number increases automatically.
6. When not writing the adjusted value, press the [▶▶I] key to move to the next item. The [I◀◀] key is available to back to the last item.
7. The following message is displayed after all power supply adjustments finish.

LCD display

8. Press the [■] key to return the test mode (display check mode).

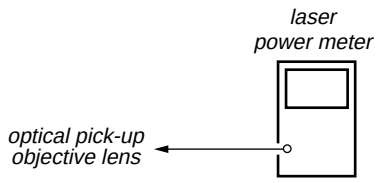
• Configuration of power supply adjustment auto item feed



Laser Power Check

Note: If result of measurement of the laser power does not satisfy the specification, either replace the OP (optical pick-up unit) or check whether the laser circuit block is working correctly.
When the result of laser power measurement does not satisfy the specification even though the laser circuit block is confirmed to be working correctly, replace the OP (optical pick-up unit).

• Connection



• Checking and adjusting method

1. Select the manual mode of test mode (see page 12), and set the laser power checking mode (item number 010).

LCD display

010 Laser

2. Press the [I◀◀] key continuously until the optical pick-up moves to the most inward track.
3. Open the cover and set the laser power meter on the objective lens of the optical pick-up.
4. Press the [▶▶I] key, and set the laser MO read check mode (item number 011).

LCD display

011 LrefPw **

5. Check that the laser power meter reading is 0.572 ± 0.10 mW.
6. Press the [▶▶I] key, and set the laser CD read check mode (item number 012).

LCD display

012 HrefPw **

7. Check that the laser power meter reading is 0.763 ± 0.13 mW.
8. Press the [▶▶I] key, and set the laser MO (X2 speed) write check mode (item number 013).

LCD display

013 WrPwLo **

9. Check that the laser power meter reading is 7.34 ± 0.88 mW.
10. Press the [▶▶I] key, and set the laser MO (X4 speed) write check mode (item number 014).

LCD display

014 WrPwHi **

11. Check that the laser power meter reading is 8.81 ± 1.05 mW.
12. Press the [■] key to quit the manual mode, and activate the test mode (display check mode).

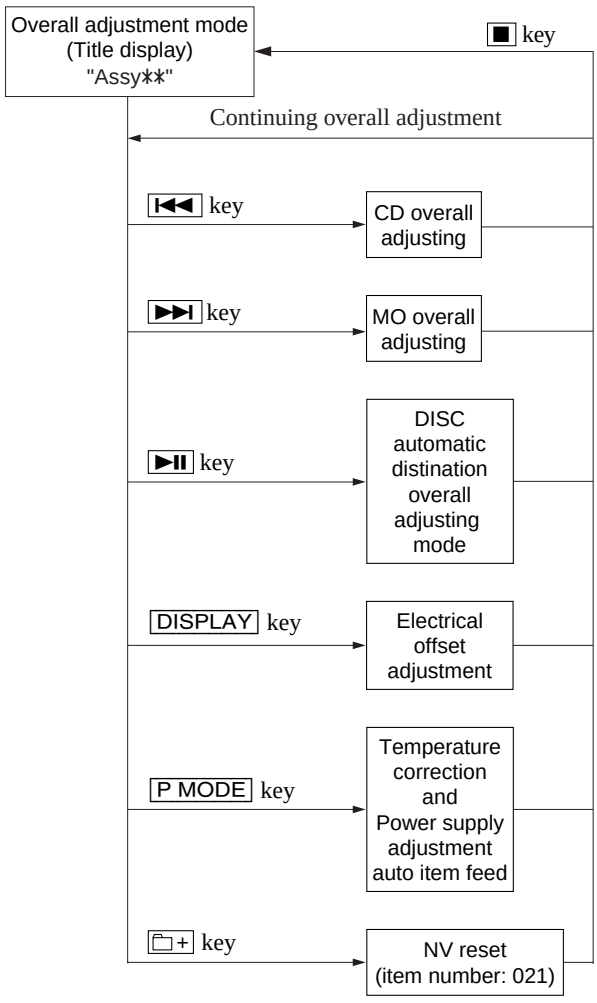
Adjustment Required Before Overall Adjustment

Change the following adjustment value of two items before overall adjustment.

1. Select the manual mode of test mode (see page 13), and set item number 865.
2. Adjust with the [VOL +] key (adjusted value up) or [VOL –] key (adjusted value down) so that the adjusted value becomes 1F.
3. Press the [🗀 –] key to write yhe adjustment value.
4. Set item number 866.
5. Adjust with the [VOL +] key (adjusted value up) or [VOL –] key (adjusted value down) so that the adjusted value becomes 2C.
6. Press the [🗀 –] key to write yhe adjustment value.
7. Press the [■] key to return the test mode (display check mode).

Overall Adjustment Mode

• Configuration of Overall Adjustment Mode



- **Overall Adjustment Mode (Title Display)**

LCD display

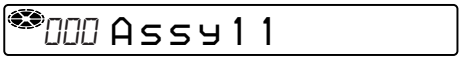
: (Disc mark) At end of power supply adjustment: Outside lit
***: Left side = MO overall adjustment information*
F: MO overall adjustment completed*
1: Manual adjustment exists (overall adj. not completed)*
0: Not adjusted*
Right side = CD overall adjustment information
**F: CD overall adjustment completed*
**1: Manual adjustment exists (overall adj. not completed)*
**0: Not adjusted*

Note: Adjust the CD first, when performing adjustment.

- **Adjustment Method of CD and MO Overall Adjustment Mode**

1. Set the test mode (see page 12).
2. Press the |◄◄| key or VOL– key to activate the overall adjustment mode.

LCD display



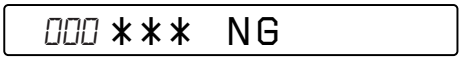
3. Insert CD disc in the set, and press the |◄◄| key to set the CD overall adjustment mode. Automatic adjustments are made.

LCD display

****: Item number for which an adjustment is being executed.*

4. In case of CD overall adjustment NG, readjust from the NV reset (see page 17), The temperature correction (see page 17) may be omitted.

LCD display



****: NG item number.*

5. If OK through the CD overall adjustments, then perform MO overall adjustments.

LCD display

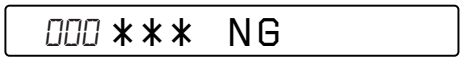
6. Insert MO disc in the set, and press the |►►| key to set the MO overall adjustment mode. Automatic adjustments are made.

LCD display

****: Item number for which an adjustment is being executed.*

7. In case of MO overall adjustment NG, readjust from the NV reset (see page 17). The temperature correction (see page 17) may be omitted.

LCD display



****: NG item number.*

8. If OK through the MO overall adjustments, press the |■| key to return to the test mode and terminate the overall adjustment mode.

LCD display

- **Overall Adjustment error message**

The following message will be displayed if adjustment procedure is mistaken in the CD and MO overall adjustment.

Message	Display timing	Description
CLOSE!	During CD/MO/DISC automatic distinction overall adjustment	DISC is not inserted.
Set CD!	During MO/DISC automatic distinction overall adjustment During offset adjustment	• CD overall adjustment is not completed in the MO overall adjustment. • CD and MO overall adjustment is not completed in the offset adjustment.
Set MO!	During offset adjustment	MO overall adjustment is not completed in the offset adjustment
NoTmp!	During CD/MO/DISC automatic distinction overall adjustment	Temperature correction (item number 015) is not finished.
NoChg!	During CD/MO/DISC automatic distinction overall adjustment	Charge voltage adjustment (item number: 755, 756) is not finished

- **CD and MO Overall Adjustment Items**

1. CD overall adjustment items

Item No.	Description
761	VC,VR power supply H/L selection
300	HPIT setting . servo OFF
561	SLED inward movement
562	SLED outward movement
High reflection electrical offset adjustment	
312	Laser ON . Focus UP . vc correction
ALFA offset adjustment	
313	IJ offset adjustment
314	FE offset adjustment
HPIT adjustment	
320	Focus servo ON
324	TE offset adjustment 1
321	TE gain adjustment
328	TWPP gain adjustment
324	TE offset adjustment 1
332	TE offset adjustment 2
330	Tracking servo ON
336	ABCD gain adjustment
337	KF gain correction
338	RF gain adjustment
344	FCS gain adjustment
345	TRK gain adjustment
521	Two-axis sensitivity (outer position)
522	Two-axis sensitivity (outer position)
300	HPIT setting . servo OFF

2. MO overall adjustment items

Item No.	Description
716	VC,VR power supply H/L selection
100	R_GRV setting . servo OFF
Low reflection electrical offset adjustment	
112	Laser ON . Focus UP vc correction
ALFA offset adjustment	
113	IJ offset adjustment
114	FE offset adjustment
118	Wpp denominator offset adjustment
LPIT adjustment	
200	LPIT setting . servo OFF
561	SLED inward movement
220	Focus servo ON
224	TE offset adjustment 1
221	TE gain adjustment
224	TE offset adjustment 1
232	TE offset adjustment 2
230	Tracking servo ON
236	ABCD gain adjustment
237	KF gain correction
238	RF gain adjustment
244	Focus gain adjustment
245	Tracking gain adjustment
READ GRV adjustment 1	
100	R_GRV setting . servo OFF
562	SLED outward movement
120	Focus servo ON
122	TON offset adjustment
121	TE gain adjustment
122	TON offset adjustment
123	TEIN offset adjustment
124	TWPP offset adjustment 1
130	Tracking servo ON
131	TWPP offset adjustment 1
136	ABCD gain adjustment
137	KF gain correction
139	ADIP BPF f0 adjustment
144	Focus gain adjustment
145	Tracking gain adjustment
134	TWPP gain adjustment
131	TWPP offset adjustment 1
132	TWPP offset adjustment 2
149	TWPP OP offset adjustment
WRITE GRV adjustment	
410	HEAD DOWN . GRV servo ON
420	READ → WRITE selection
421	TE gain adjustment
423	TEIN offset adjustment
430	Tracking servo ON
431	TWPP offset adjustment 1
436	ABCD gain adjustment

Item No.	Description
444	Focus gain adjustment
445	Tracking gain adjustment
434	TWPP gain adjustment
431	TWPP offset adjustment 1
432	TE offset adjustment 2
449	TWPP OP offset adjustment
410	WRITE → READ selection
411	TWPP offset adjustment 1
412	TE offset adjustment 2
418	TWPP OP offset adjustment
490	HCLV LCLV selection process
450	HEAD DOWN . GRV servo ON
460	READ → WRITE selection
461	TE gain adjustment
463	TEIN offset adjustment
470	Tracking servo ON
471	TWPP offset adjustment 1
476	ABCD gain adjustment
484	Focus gain adjustment
485	Tracking gain adjustment
451	TWPP offset adjustment 1
452	TE offset adjustment 2
460	READ → WRITE selection
470	Tracking servo ON
474	TWPP gain adjustment
471	TWPP offset adjustment 1
472	TE offset adjustment 2
489	TWPP OP offset adjustment
450	WRITE → READ selection
451	TWPP offset adjustment 1
452	TE offset adjustment 2
458	TWPP OP offset adjustment
448	30 sec continuous REC
400	GRV setting . servo OFF . HEAD UP
READ GRV adjustment 2	
120	Focus servo ON
130	Tracking servo ON
138	RF gain adjustment
141	FOCUS_BIAS
035	Stray light offset measurement
100	R_GRV setting . servo OFF

Remuse Clear

Perform the Resume clear when all adjustments completed.

- **Resume Clear Setting Method**

1. Select the manual mode of the test mode, and set item number 043 (see page 13).

LCD display

043 Resume 00

2. Press the [□ –] key.

LCD display

043 Res***

Resume clear complete

043 ResClr

3. Press the [■] key to return to the test mode (display check mode).

Rewriting the Patch Data at Replacement of Main Board

This set requires the patch data in the nonvolatile memory (IC851) to be rewritten using the application, when the MAIN board was replaced.

Caution: The application that meets the microcomputer version in this set must be used when rewriting the patch data. Rewriting the patch data using the application not suitable for the microcomputer version could cause the set to malfunction.
For a checking method of the microcomputer version, see “SECTION 4 TEST MODE” (page 12).

• Preparation

1. USB cable (attached to the set)
2. Personal computer in which the Net MD Driver has been installed. (For further information, see “System requirements” (page 4) in “SECTION 1 SERVICING NOTES”)
3. Application “USB_PatchWriter” for patch data rewriting

• How to Get the Application “USB_PatchWriter” for Patch Data Rewriting

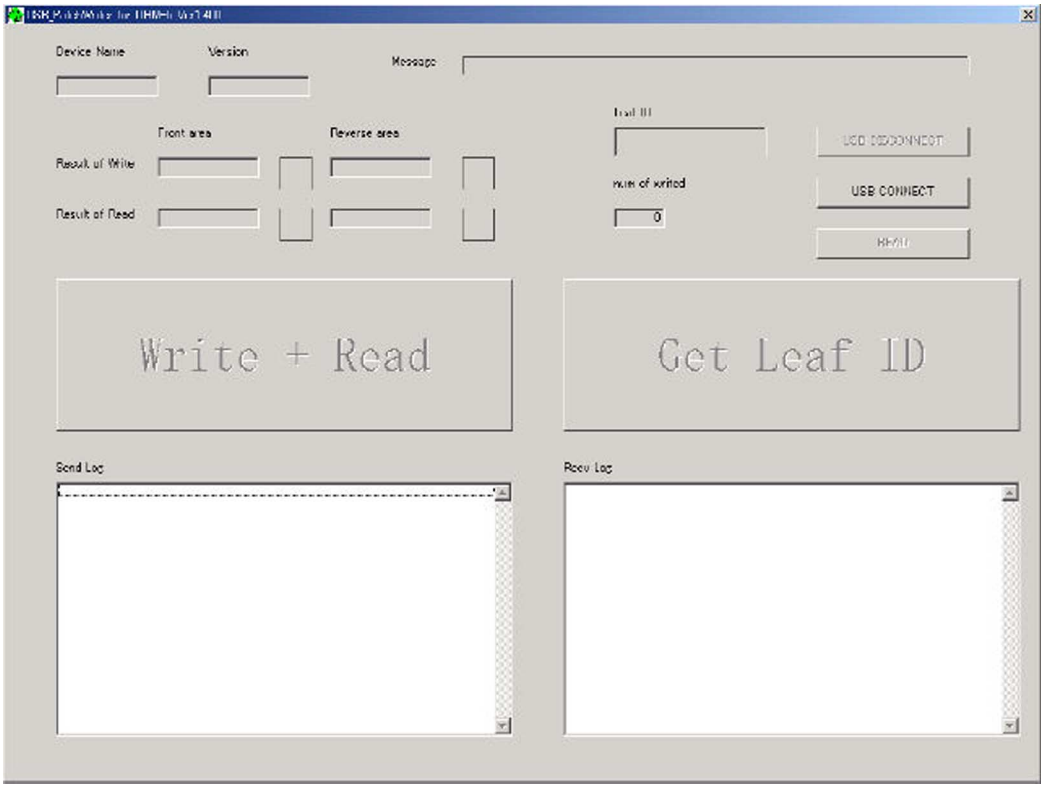
Contact our service technical support section for PA products to get the application.

• Pre-check

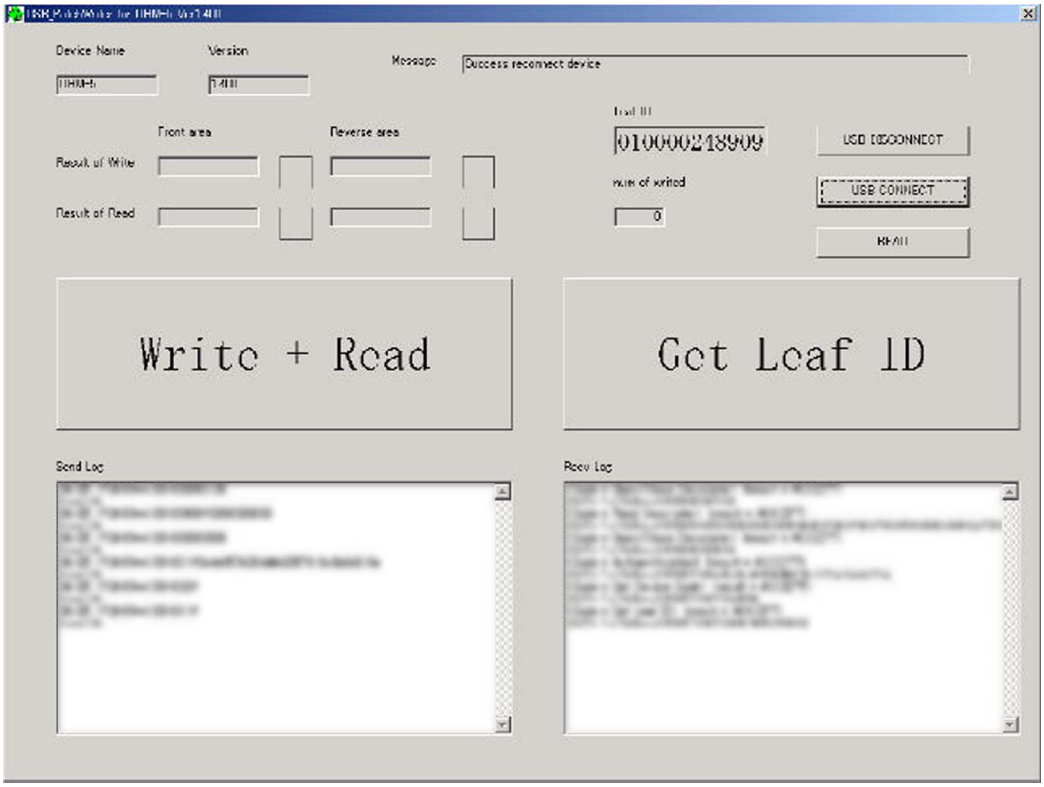
1. Check the microcomputer version in this set. (For a checking method of the microcomputer version, see “SECTION 4 TEST MODE” (page 12).)
2. Check that the Net MD Driver has been installed in the personal computer.
3. Make sure that the set is in the Normal mode.
   Note: Do not rewrite the patch data in the Test mode.

• Rewriting the Patch Data

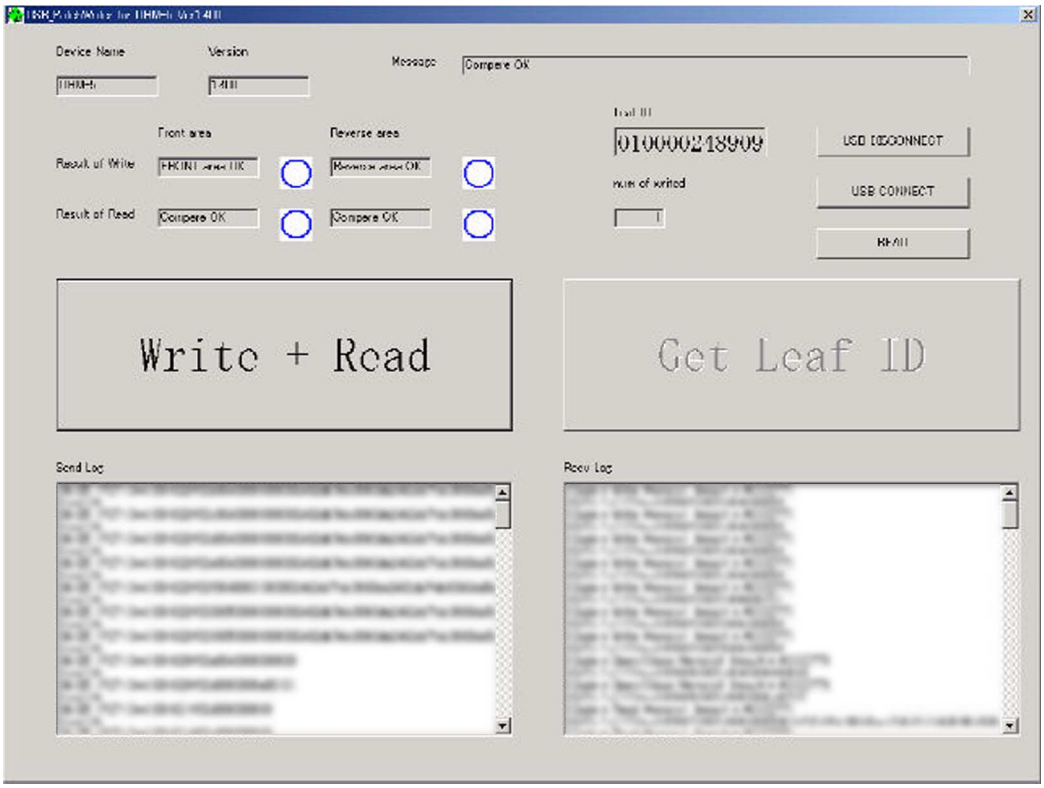
1. Connect the set to the personal computer with the USB cable.
2. Start the application “USB_PatchWriter”.
3. Make sure that the following window opens.
4. Click the [USB CONNECT] button.



5. Confirm that the model and version indicated on the title bar coincide with the codes displayed in the Device Name block and the Version block in the window.

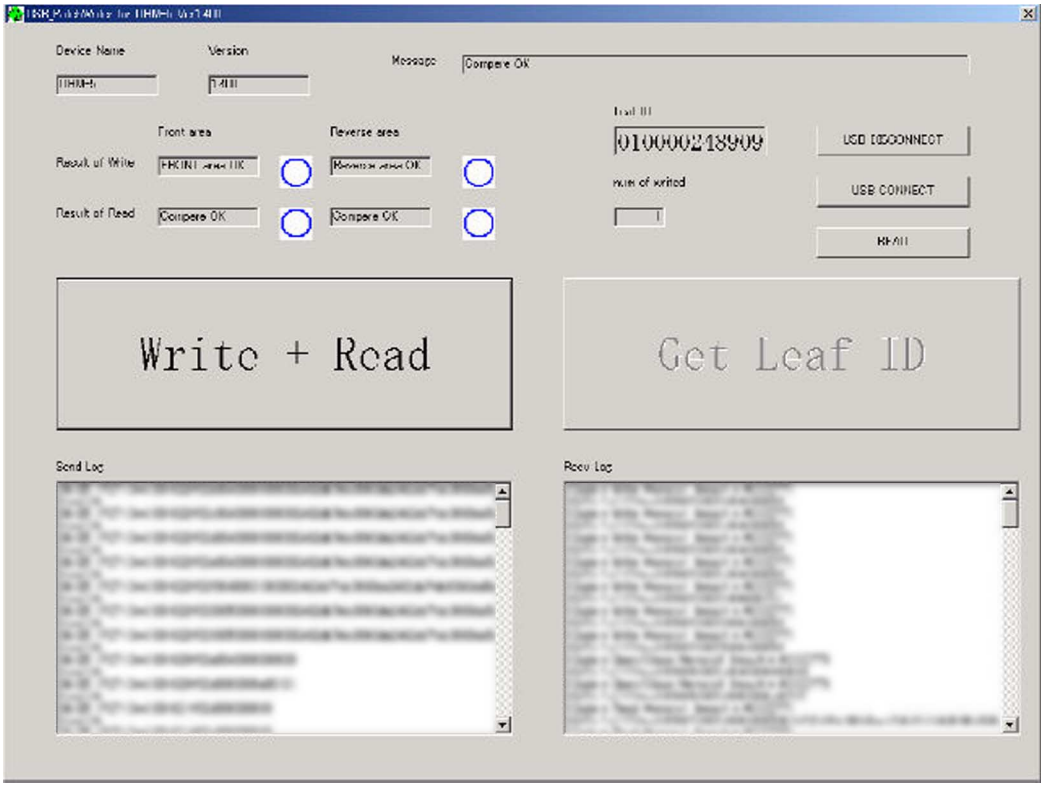


6. Click the [Write + Read] button.
   The patch data writing and the verify processing will be executed automatically in the following order:
   1) Writing to patch area (front area)
   2) Writing to patch area (reverse area)
   3) Verifying patch area (front area)
   4) Verifying patch area (reverse area)
7. The operation will terminate with the ○ (blue) mark given to all areas.
   If the × (red) mark is given to any area, the nonvolatile memory will be faulty.

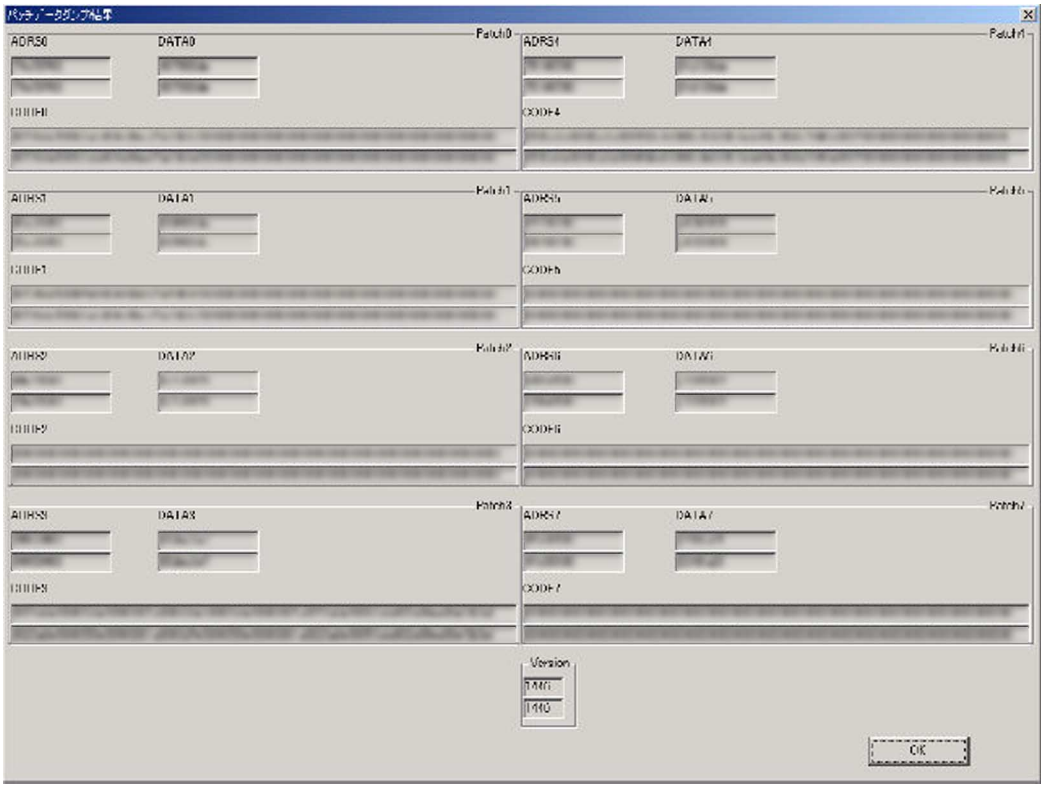


- Confirmation of contents of the patch data rewrited

1. Click the [READ] button to confirm the contents of the patch data rewrited.



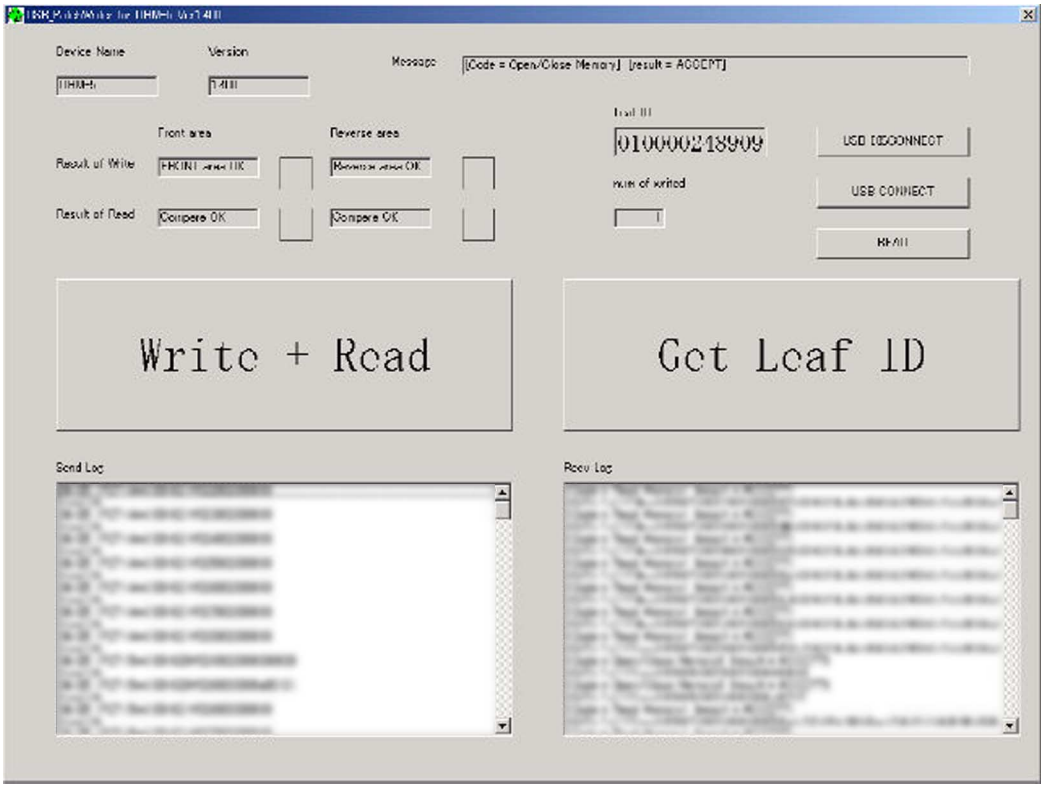
2. The application reads out the front and reverse patch areas and displays the results in the edit box.
   Confirm that the upper column coincides with the lower column as the following window.
3. Click the [OK] button to close the window.



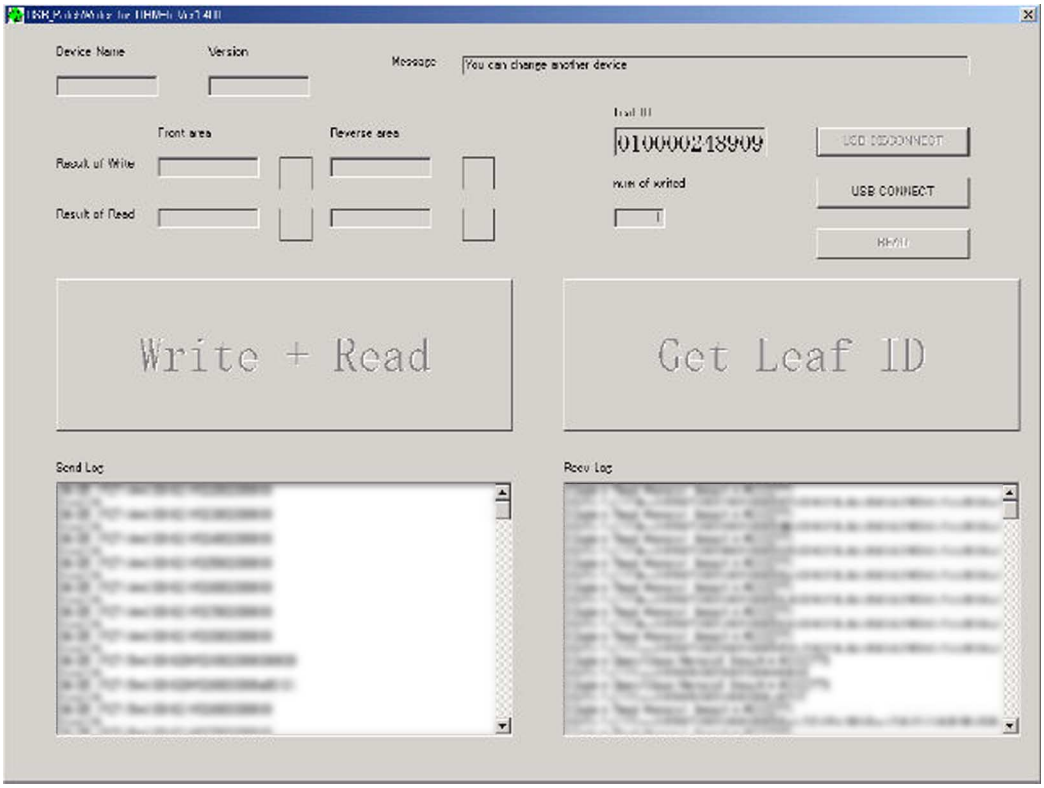
- Disconnecting the USB cable
  Disconnect the USB cable as the following procedure after rewriting the patch data and confirmation.

Note: When the following procedure is not completed but USB cable is extracted, the application does not recognize the set at exchanging of the set.

1. Click the [USB DISCONNECT] button.



2. Confirm that "You can change another device" is displayed in the message block.



3. Disconnect the USB cable from the personal computer and the set.

Rewriting the NV values

Caution: The application that meets the microcomputer version in this set must be used when rewriting the NV values. Rewriting the NV values using the application not suitable for the microcomputer version could cause the set to malfunction.
For a checking method of the microcomputer version, see “SECTION 4 TEST MODE” (page 12).

• Preparation

1. USB cable (attached to the set)
2. Personal computer in which the Net MD Driver has been installed. (For further information, see “System requirements” (page 4) in “SECTION 1 SERVICING NOTES”)
3. Application “NVWriter” for NV values rewriting

• How to get the application “NVWriter” for NV values rewriting

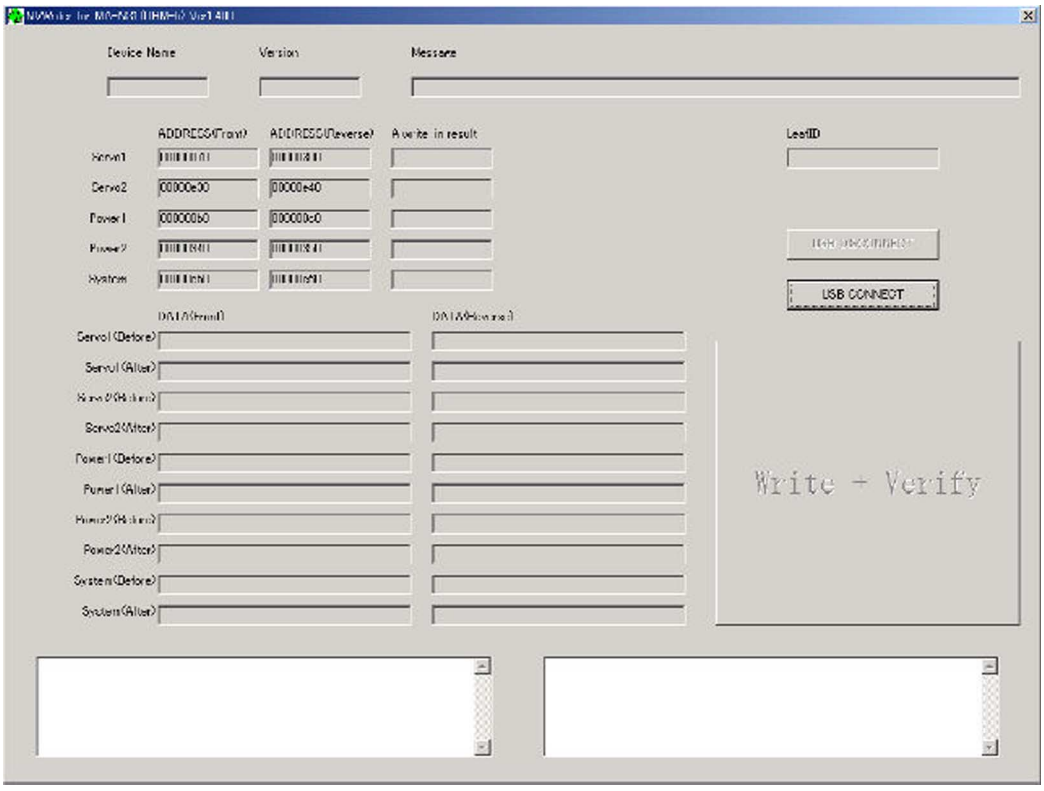
Contact our service technical support section for PA products to get the application.

• Pre-check

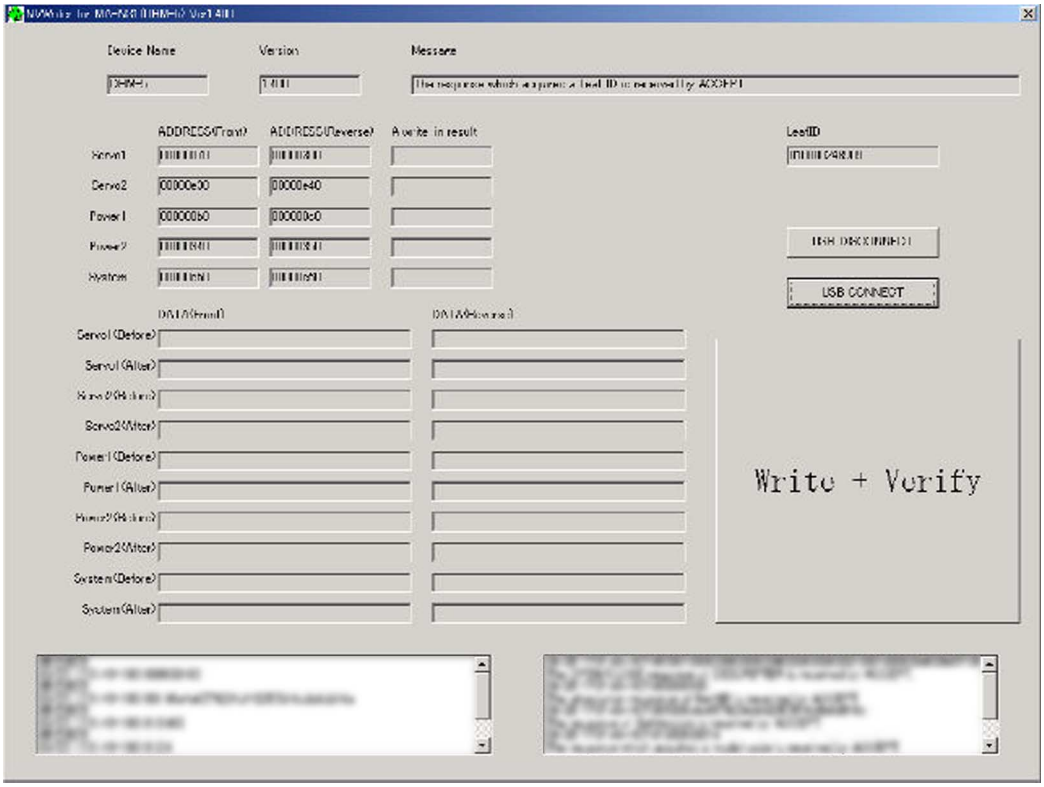
1. Check the microcomputer version in this set. (For a checking method of the microcomputer version, see “SECTION 4 TEST MODE” (page 12).)
2. Check that the Net MD Driver has been installed in the personal computer.
3. Make sure that the set is in the Normal mode.
   Note: Do not rewrite the NV values in the Test mode.

• Rewriting the NV values

1. Connect the set to the personal computer with the USB cable.
2. Start the application “NVWriter”.
3. Make sure that the following window opens.
4. Click the [USB CONNECT] button.

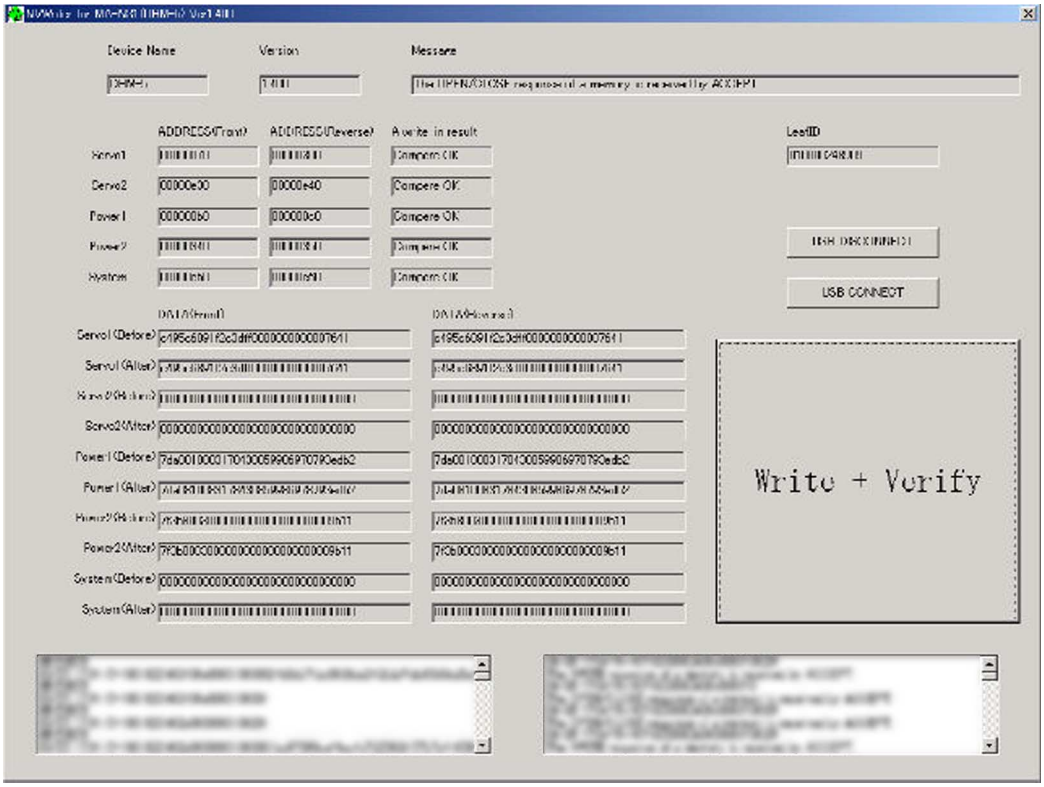


5. Confirm that the model and version indicated on the title bar coincide with the codes displayed in the Device Name block and the Version block in the window.

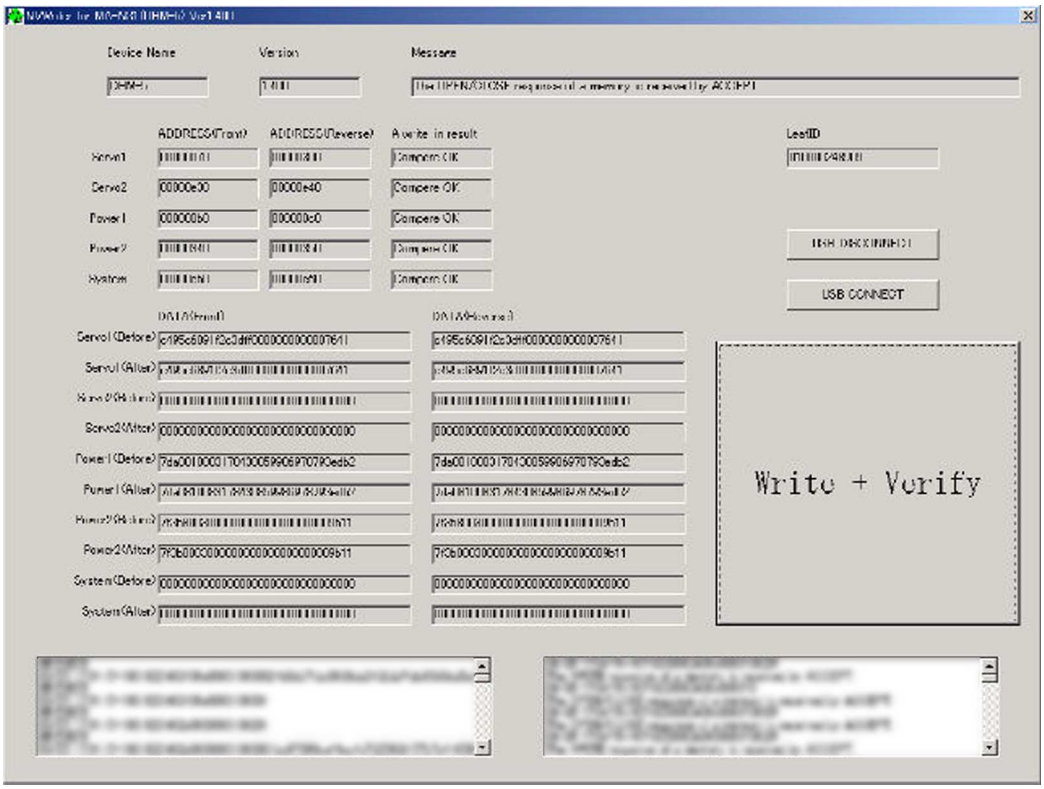


6. Click the [Write + Verify] button.
   The NV values writing and the verify processing will be executed automatically in the following order:
   1) Writing to Servo 1 area (front area)
   2) Writing to Servo 1 area (reverse area)
   3) Writing to Power Supply 1 area (front area)
   4) Writing to Power Supply 1 area (reverse area)
   5) Writing to Power Supply 2 area (front area)
   6) Writing to Power Supply 2 area (reverse area)
   7) Verifying to Servo 1 area (front area)
   8) Verifying to Servo 1 area (reverse area)
   9) Verifying to Power Supply 1 area (front area)
   10) Verifying to Power Supply 1 area (reverse area)
   11) Verifying to Power Supply 2 area (front area)
   12) Verifying to Power Supply 2 area (reverse area)

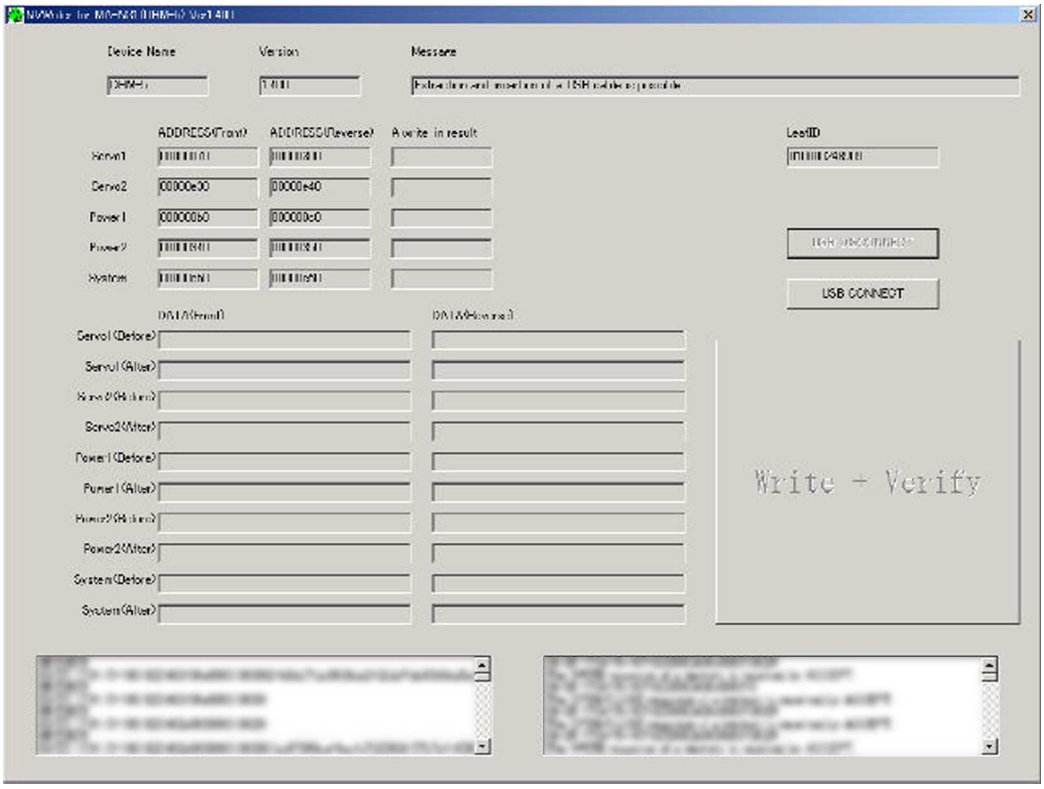
7. The operation will terminate with “Compere OK” given to all areas.
   If “Compere NG” is given to any area, the nonvolatile memory will be faulty.



8. Click the [USB DISCONNECT] button.



9. Confirm that the window becomes as shown below where the [Write + Verify] button is inactive.



10. Disconnect the USB cable from the personal computer and the set.

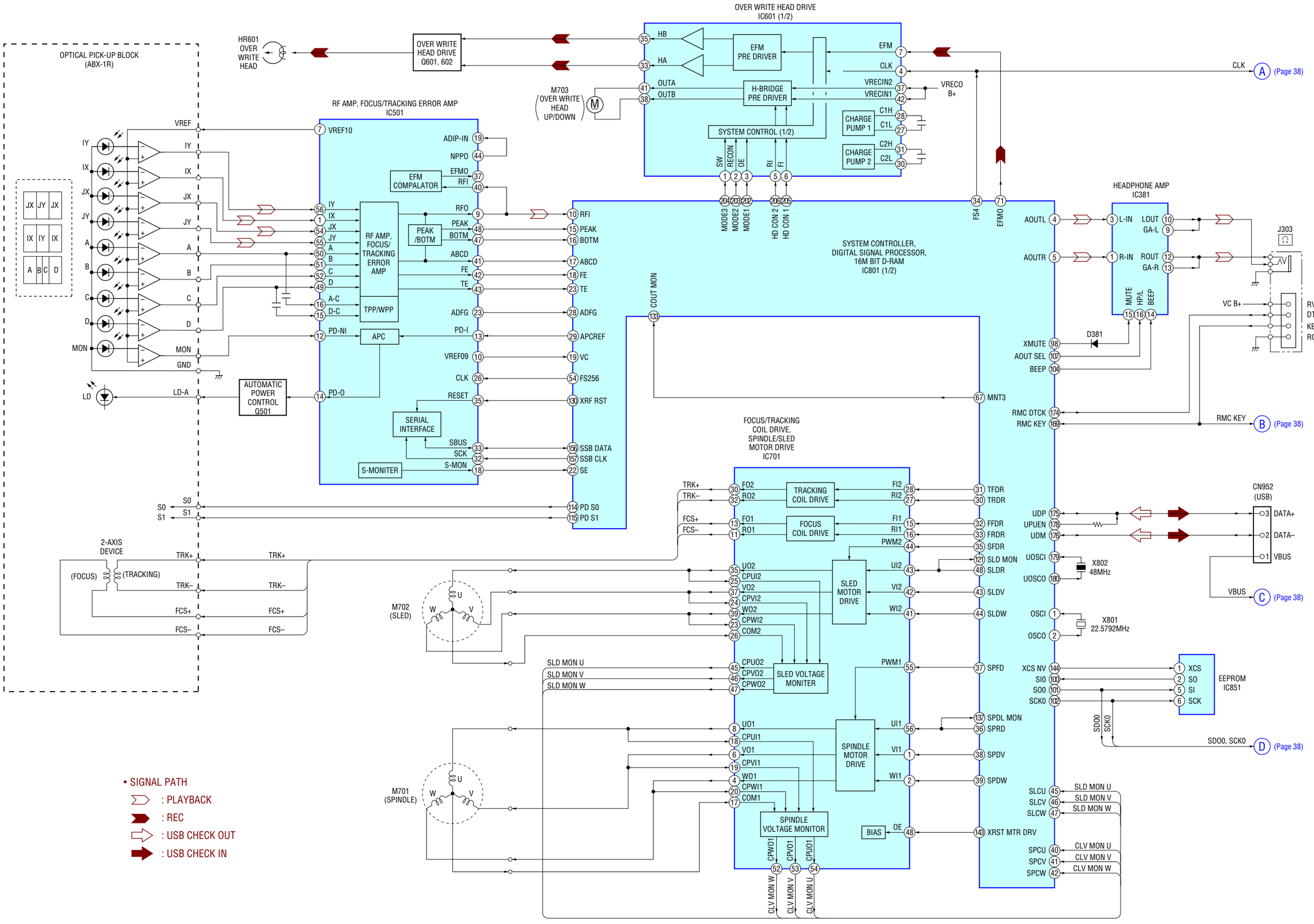
In the case of AEP, UK model, change the following adjustment value of two items after rewriting the NV values.

1. Select the manual mode of test mode (see page 13), and set item number 071.
2. Adjust with the [VOL +] key (adjusted value up) or [VOL –] key (adjusted value down) so that the adjusted value becomes 11.
3. Press the [🗀 –] key to write yhe adjustment value.
4. Set item number 072.
5. Adjust with the [VOL +] key (adjusted value up) or [VOL –] key (adjusted value down) so that the adjusted value becomes 01.
6. Press the [🗀 –] key to write yhe adjustment value.
7. Press the [■] key to return the test mode (display check mode).

MEMO

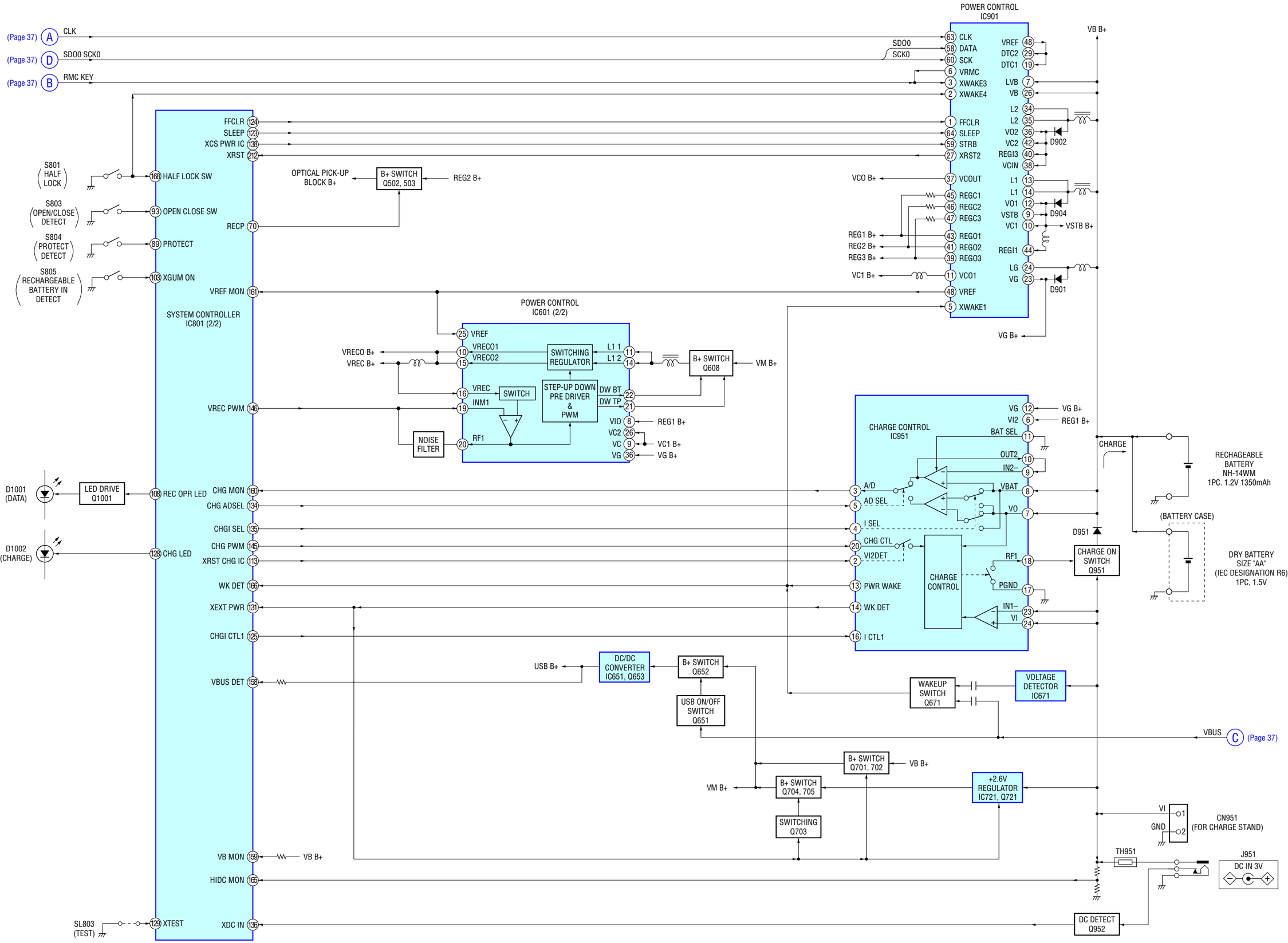
SECTION 6
DIAGRAMS

6-1. BLOCK DIAGRAM – MAIN Section –



• SIGNAL PATH
- : PLAYBACK
- : REC
- : USB CHECK OUT
- : USB CHECK IN

6-2. BLOCK DIAGRAM – POWER SUPPLY Section –



6-3. NOTE FOR PRINTED WIRING BOARD AND SCHEMATIC DIAGRAMS

Note on Printed Wiring Board:
- ○——— : parts extracted from the component side.
- ——— : parts extracted from the conductor side.
- △ : internal component.
- ▬ : Pattern from the side which enables seeing.

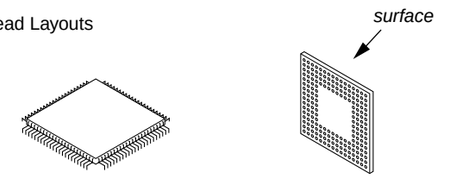
(The other layers' patterns are not indicated.)

Caution:	
Pattern face side: (Conductor Side)	Parts on the pattern face side seen from the pattern face are indicated.
Parts face side: (Component Side)	Parts on the parts face side seen from the parts face are indicated.

- MAIN board is multi-layer printed board. However, the patterns of intermediate layers have not been included in this diagrams.

∗ Replacement of IC501 and IC801 used in this set requires a special tool.

- Lead Layouts



Lead layout of conventional IC　　CSP (chip size package)

Note on Schematic Diagram:
- All capacitors are in μF unless otherwise noted. pF: μμF 50 WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4 W or less unless otherwise specified.
- △ : internal component.
- ▭ : panel designation.

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

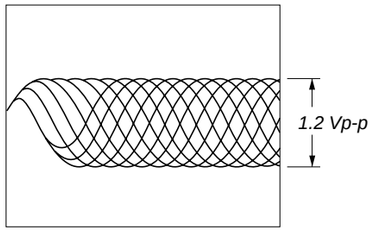
- ▬ : B+ Line.
- Total current is measured with MD installed.
- Power voltage is dc 3 V and fed with regulated dc power supply from DC IN 3 V jack (JK951).
- Voltages and waveforms are dc with respect to ground in playback mode.
  no mark : PLAYBACK
  ( ) : REC
  ⟨⟨ ⟩⟩ : USB
  ∗ : Impossible to measure
- Voltages are taken with a VOM (Input impedance 10 MΩ). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope. Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.
- Signal path.
  ⇨ : PLAYBACK
  ➡ : REC
  ⇨ : USB
- Abbreviation
  HK : Hong Kong model

∗ Replacement of IC501 and IC801 used in this set requires a special tool.

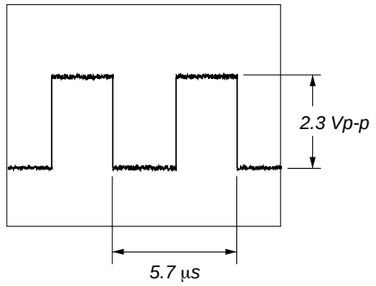
- The voltage and waveform of CSP (chip size package) cannot be measured, because its lead layout is different form that of conventional IC.

- **Waveforms**

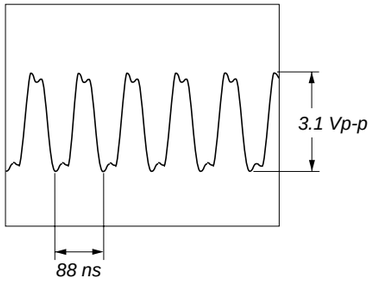
① IC501 ⑨ (RFO)



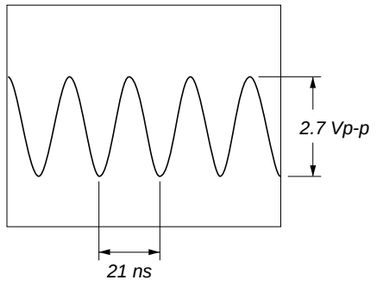
⑥ IC801 ㉞ (CLK)



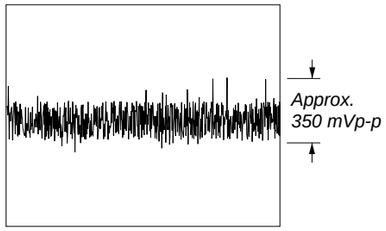
② IC501 ㉖ (CLK)



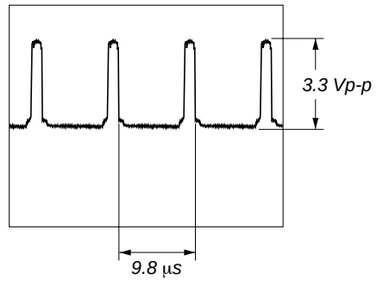
⑦ IC801 ⑱ (UOSCO) (USB mode)



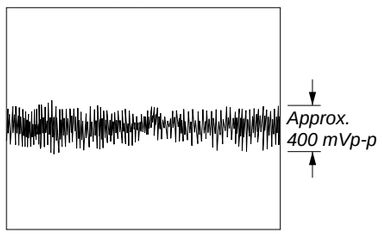
③ IC501 ㊷ (FE)



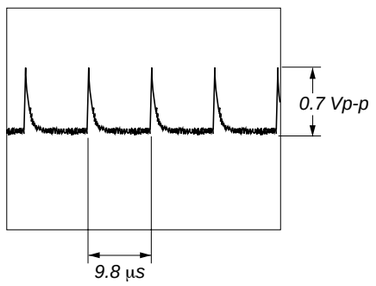
⑧ IC651 ⑤ (EXT) (USB mode)



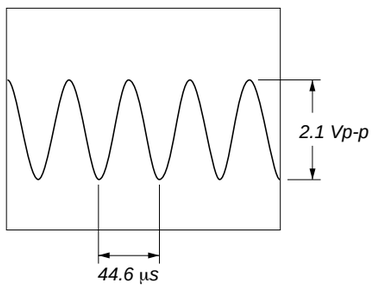
④ IC501 ㊸ (TE)



⑨ Q653 (Base) (USB mode)



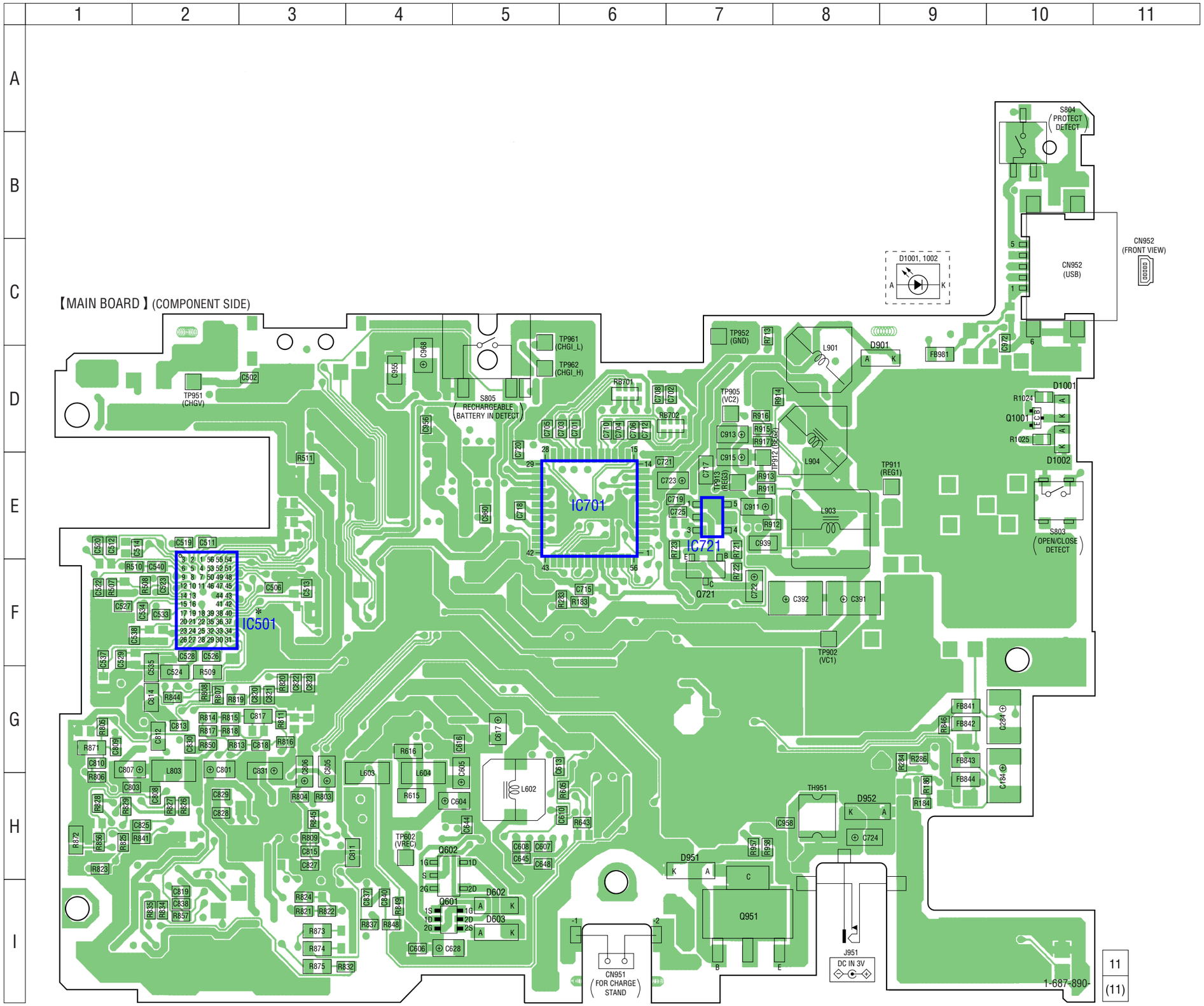
⑤ IC801 ② (OSCO)



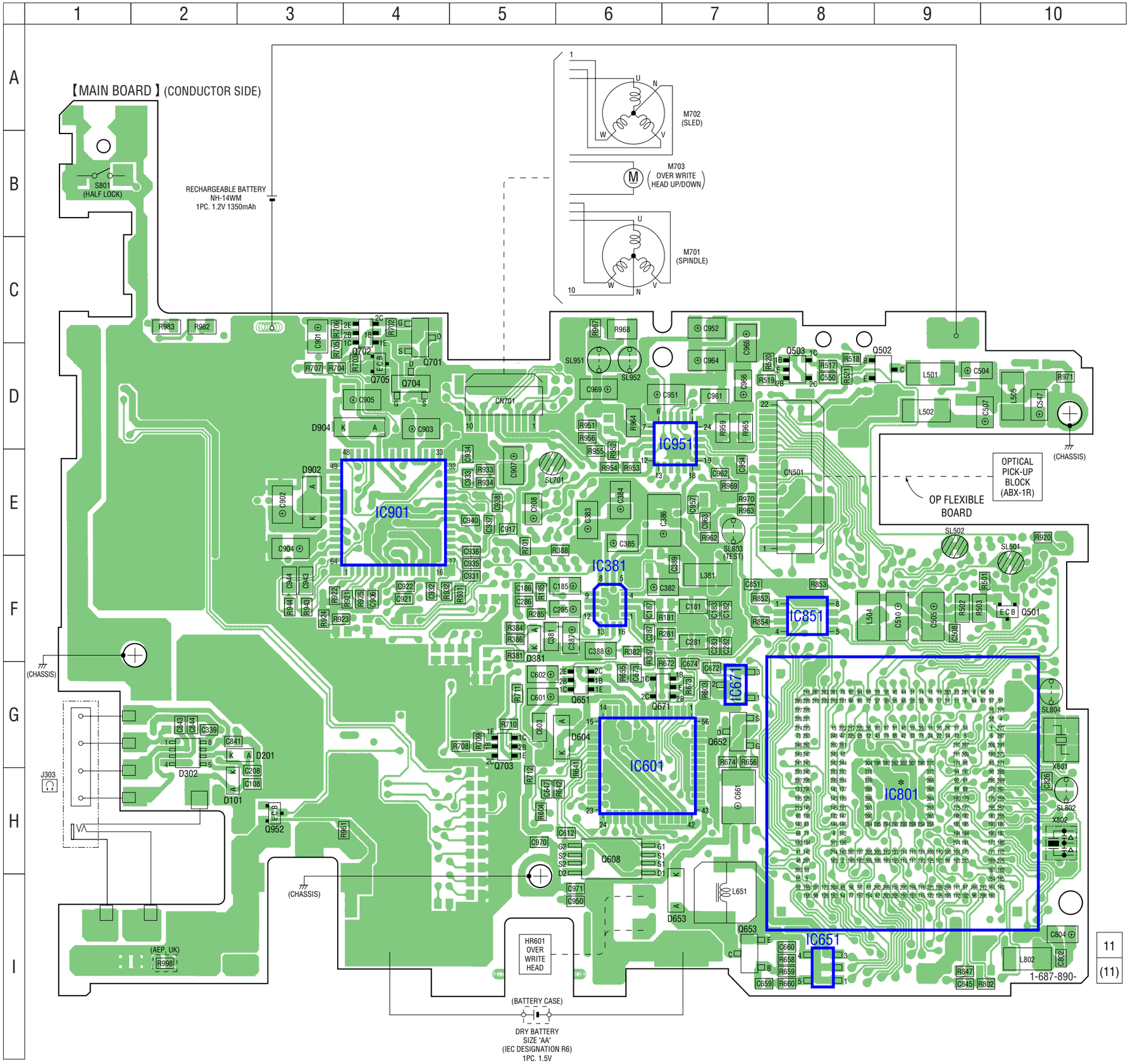
6-4. PRINTED WIRING BOARD – MAIN Board (Component Side) – :Uses unleaded solder.

- **Semiconductor Location**

Ref. No.	Location
D602	I-5
D603	I-5
D901	D-9
D951	H-7
D952	H-8
D1001	D-10
D1002	D-10
IC501	F-2
IC701	E-6
IC721	E-7
Q601	I-4
Q602	H-4
Q721	F-7
Q951	I-7
Q1001	D-10



6-5. PRINTED WIRING BOARD – MAIN Board (Conductor Side) – :Uses unleaded solder.

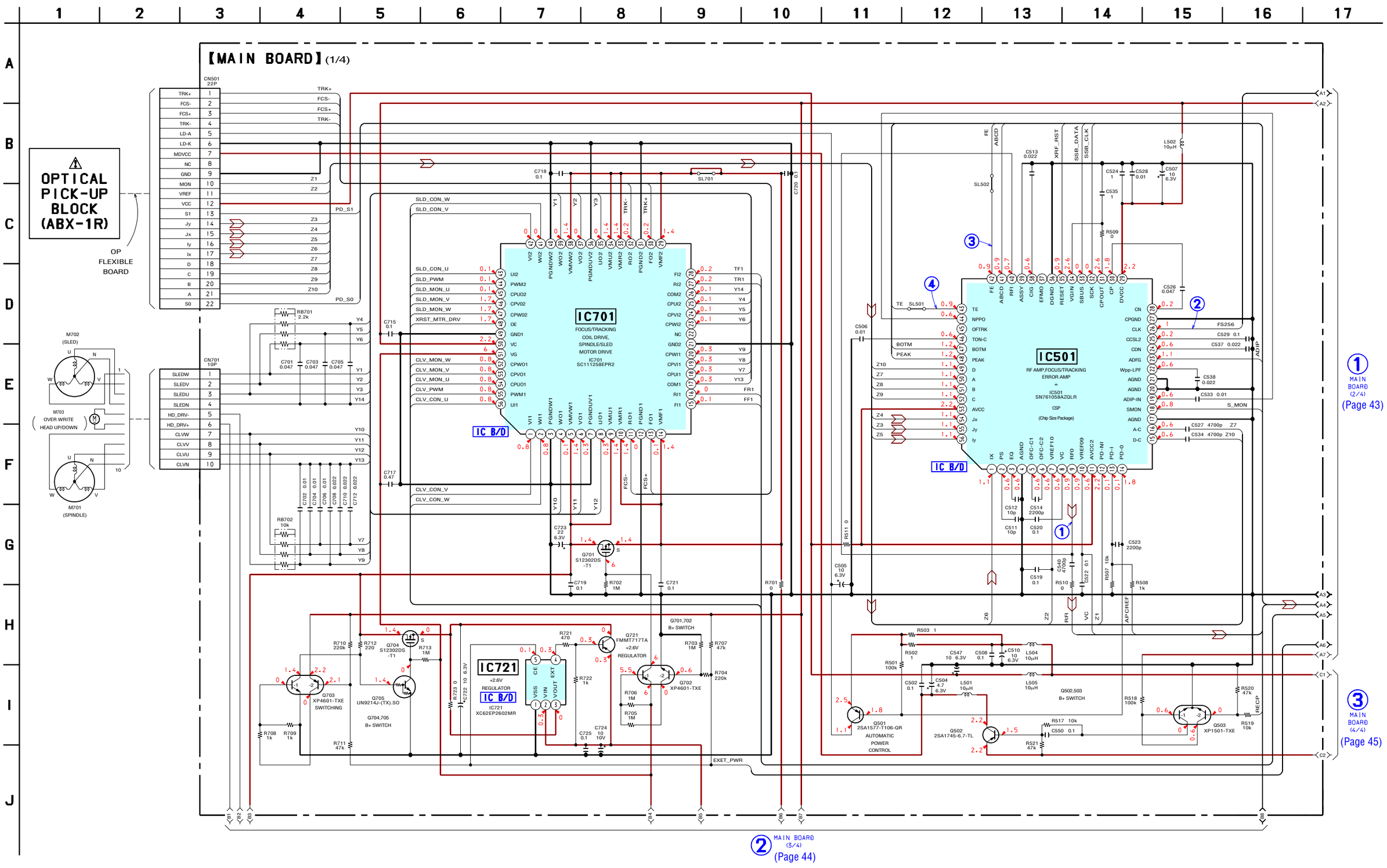


- **Semiconductor Location**

Ref. No.	Location
D101	H-2
D201	G-3
D302	G-2
D381	F-5
D604	G-6
D653	I-7
D902	E-3
D904	D-4
IC381	F-6
IC601	G-6
IC651	I-8
IC671	G-7
IC801	H-9
IC851	F-8
IC901	E-4
IC951	D-7
Q501	F-10
Q502	D-9
Q503	D-8
Q608	H-6
Q651	G-6
Q652	G-7
Q653	I-7
Q671	G-7
Q701	C-4
Q702	C-4
Q703	G-5
Q704	D-4
Q705	D-4
Q952	H-3

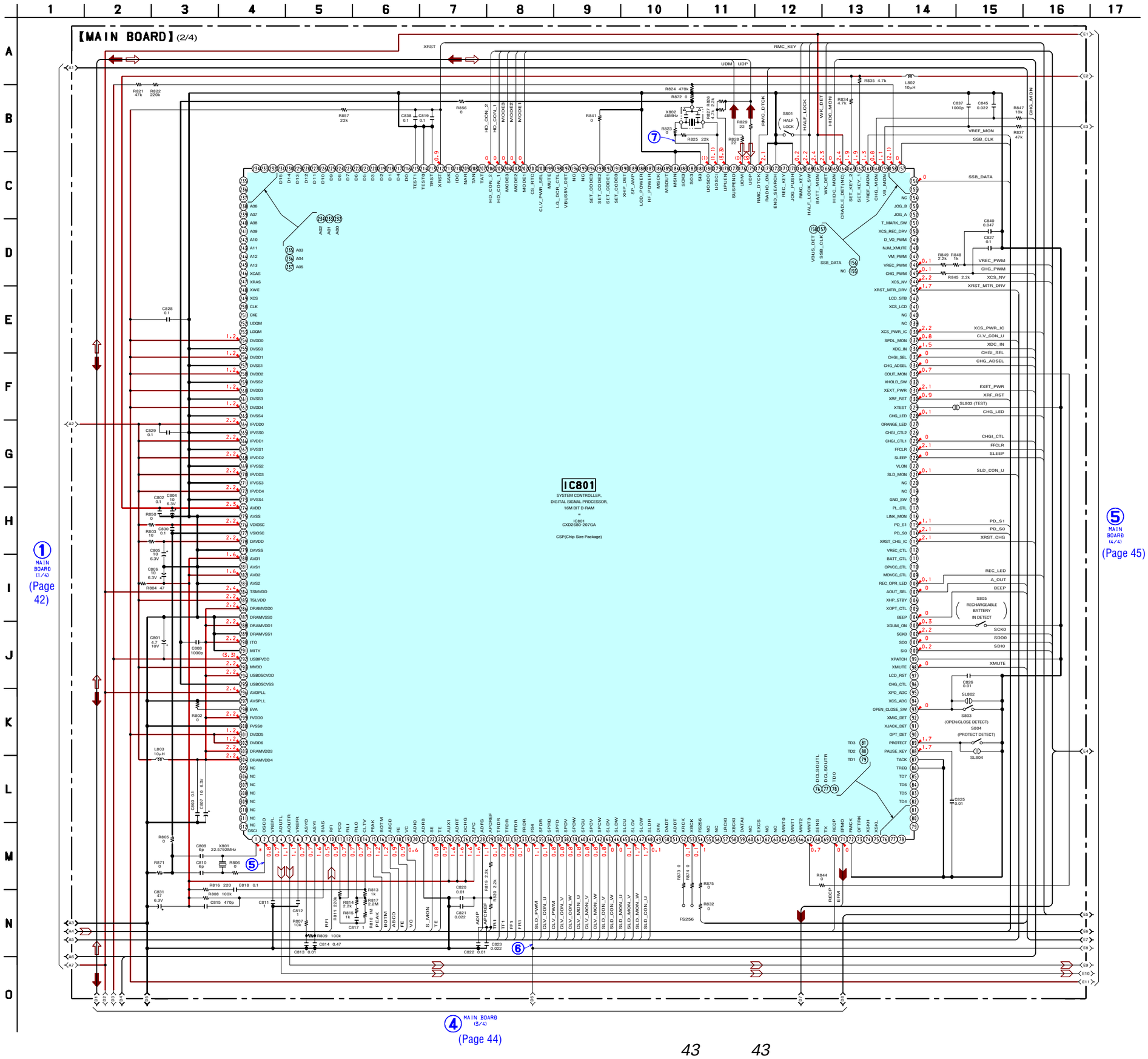
When IC851 is damaged, replace the MAIN board.

6-6. SCHEMATIC DIAGRAM – MAIN Board (1/4) – • See page 39 for Waveforms. • See page 46 for IC Block Diagrams.

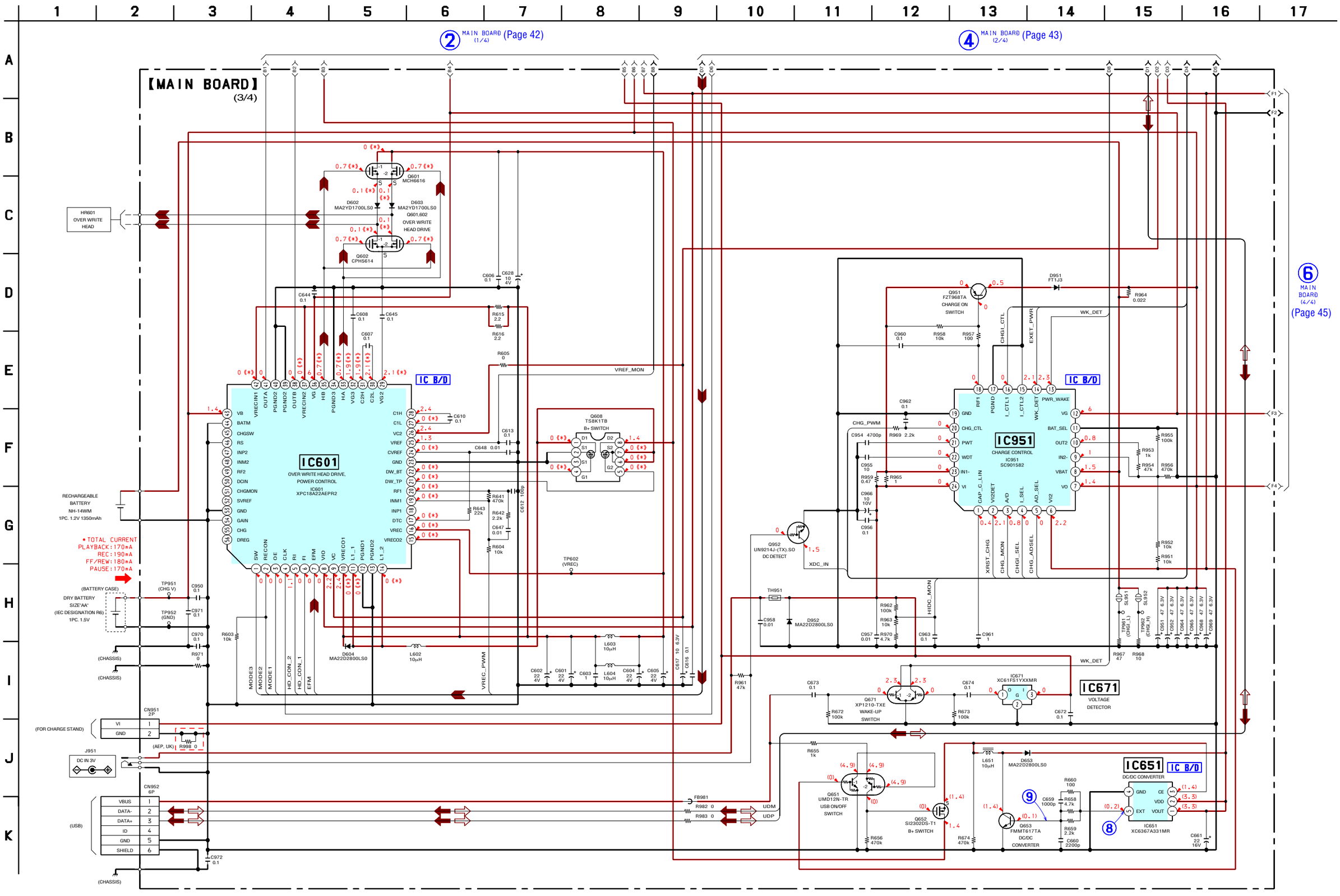


The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

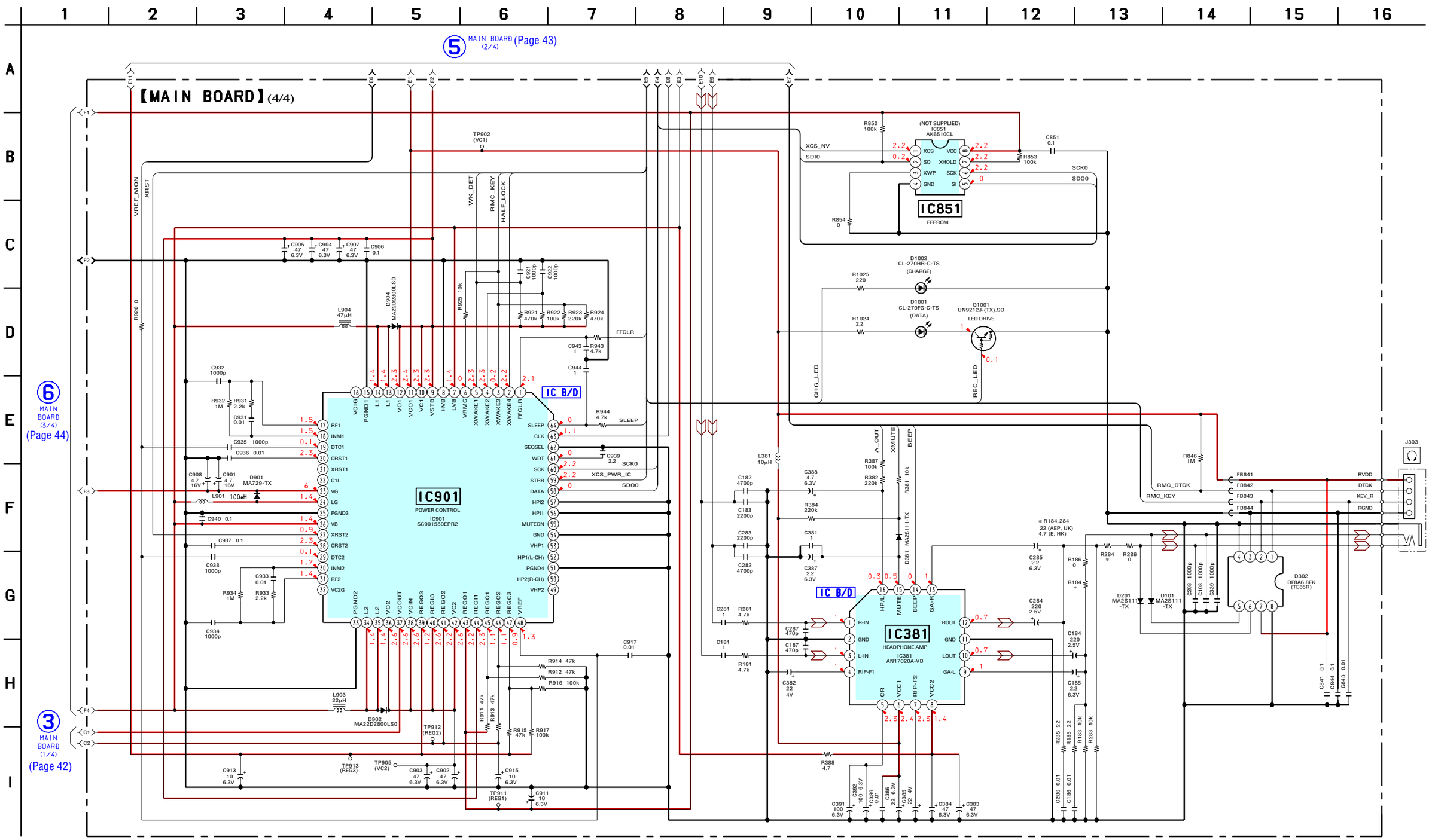
6-7. SCHEMATIC DIAGRAM – MAIN Board (2/4) – • See page 39 for Waveforms.



6-8. SCHEMATIC DIAGRAM – MAIN Board (3/4) – • See page 39 for Waveform. • See page 46 for IC Block Diagrams.



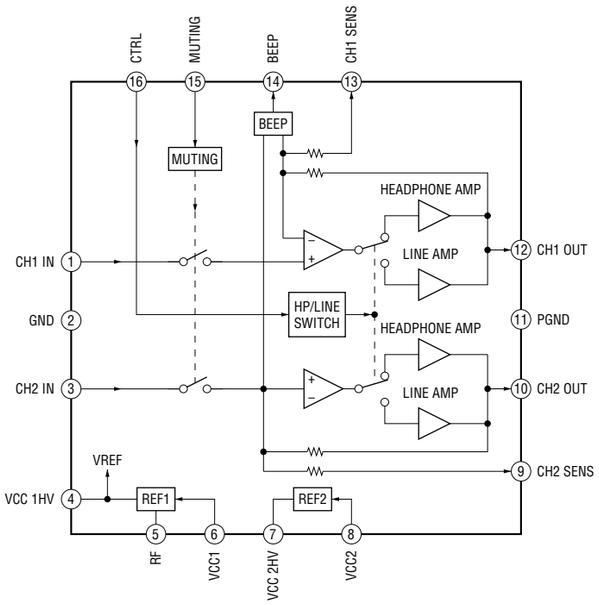
6-9. SCHEMATIC DIAGRAM – MAIN Board (4/4) – • See page 46 for IC Block Diagrams.



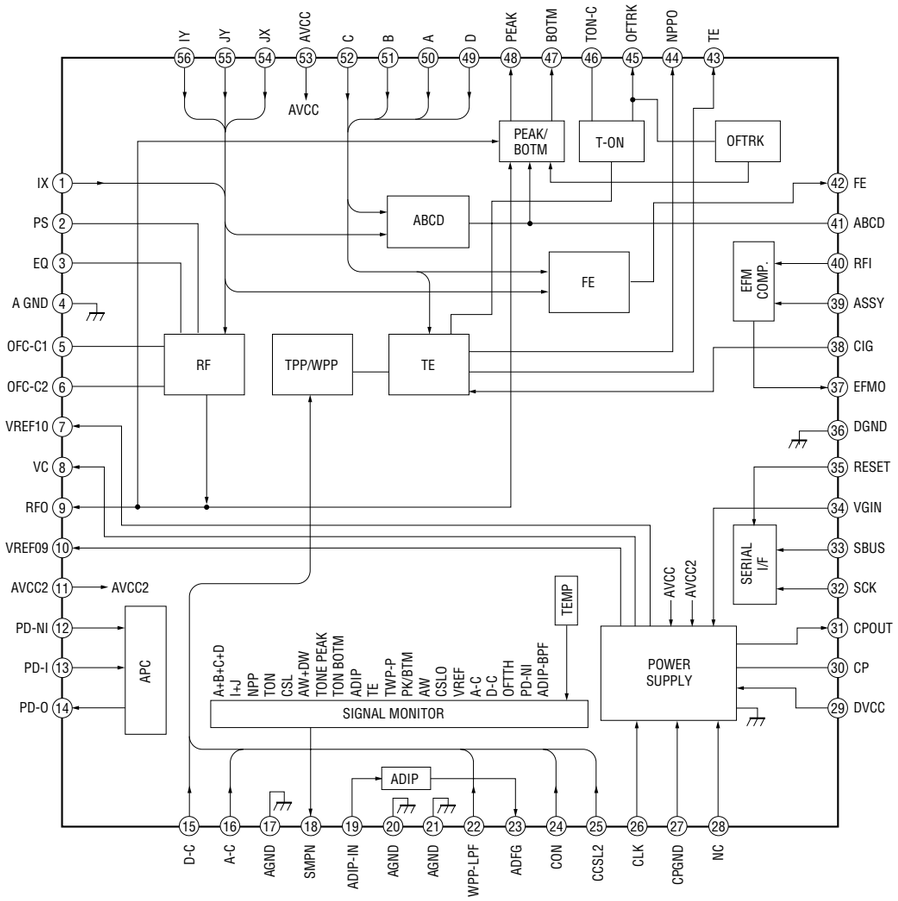
When IC851 is damaged, replace the MAIN board.

- **IC Block Diagrams**

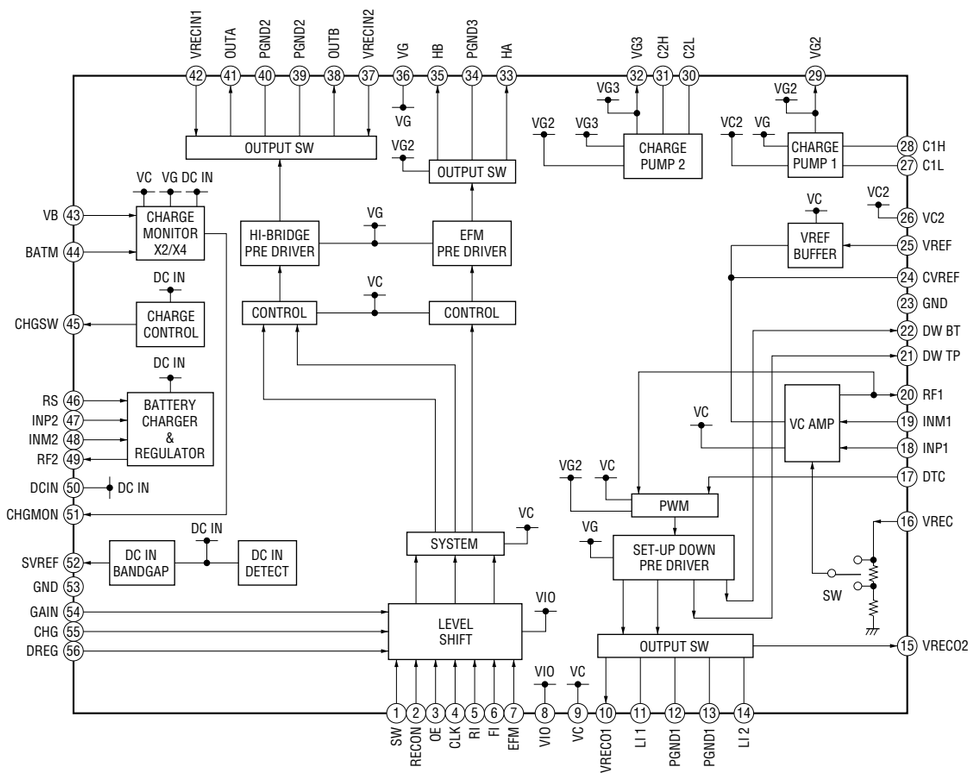
IC381 AN17020A-VB



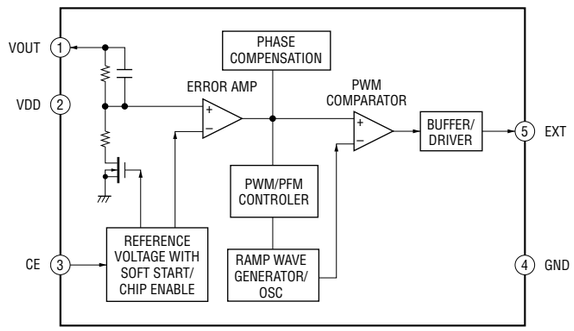
IC501 SN761058AZQLR



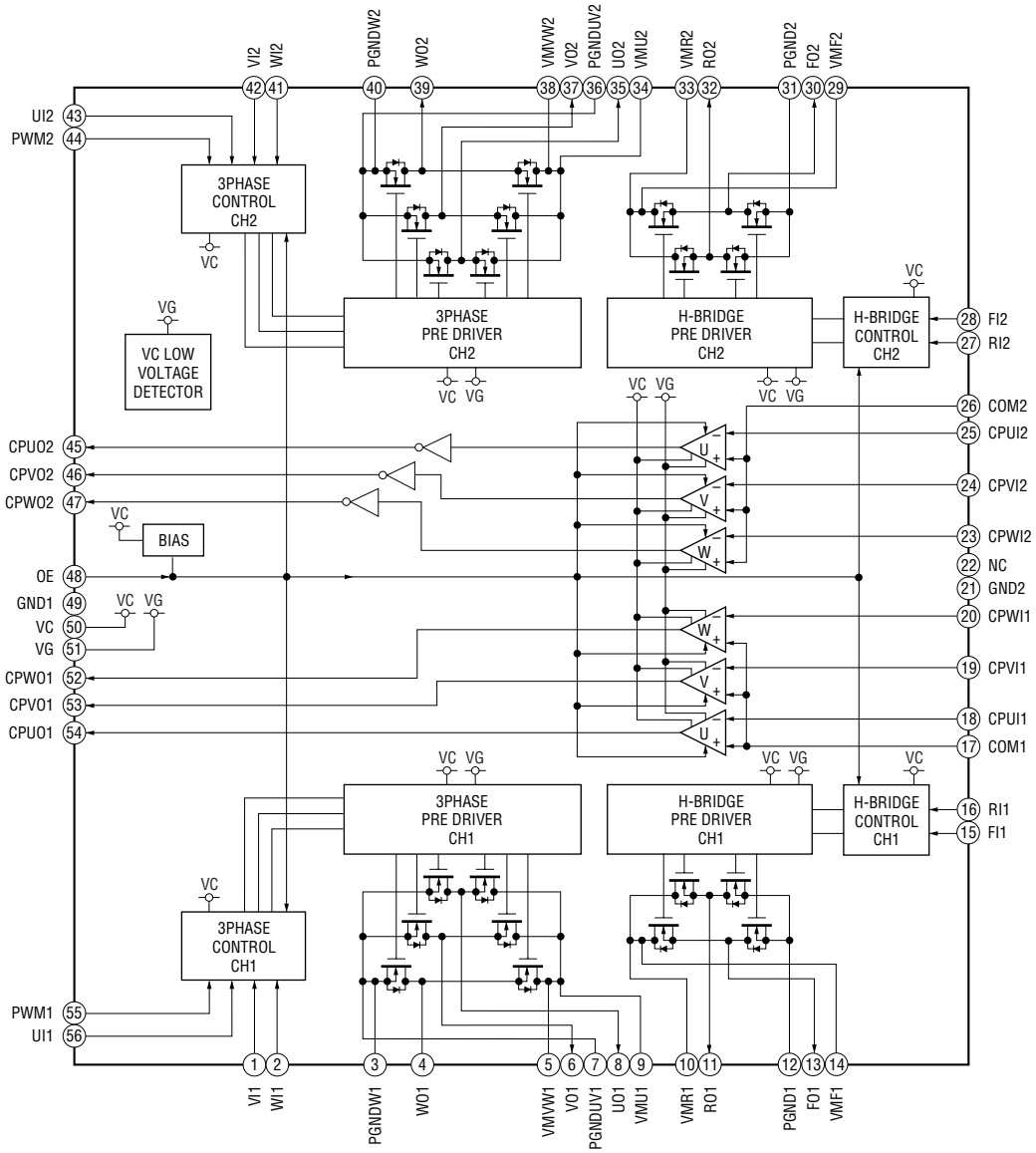
IC601 XPC18A22AEPR2



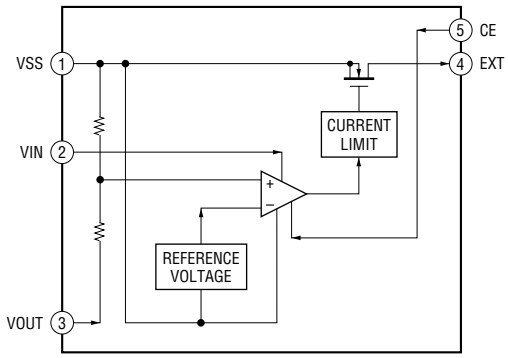
IC651 XC6367A331MR



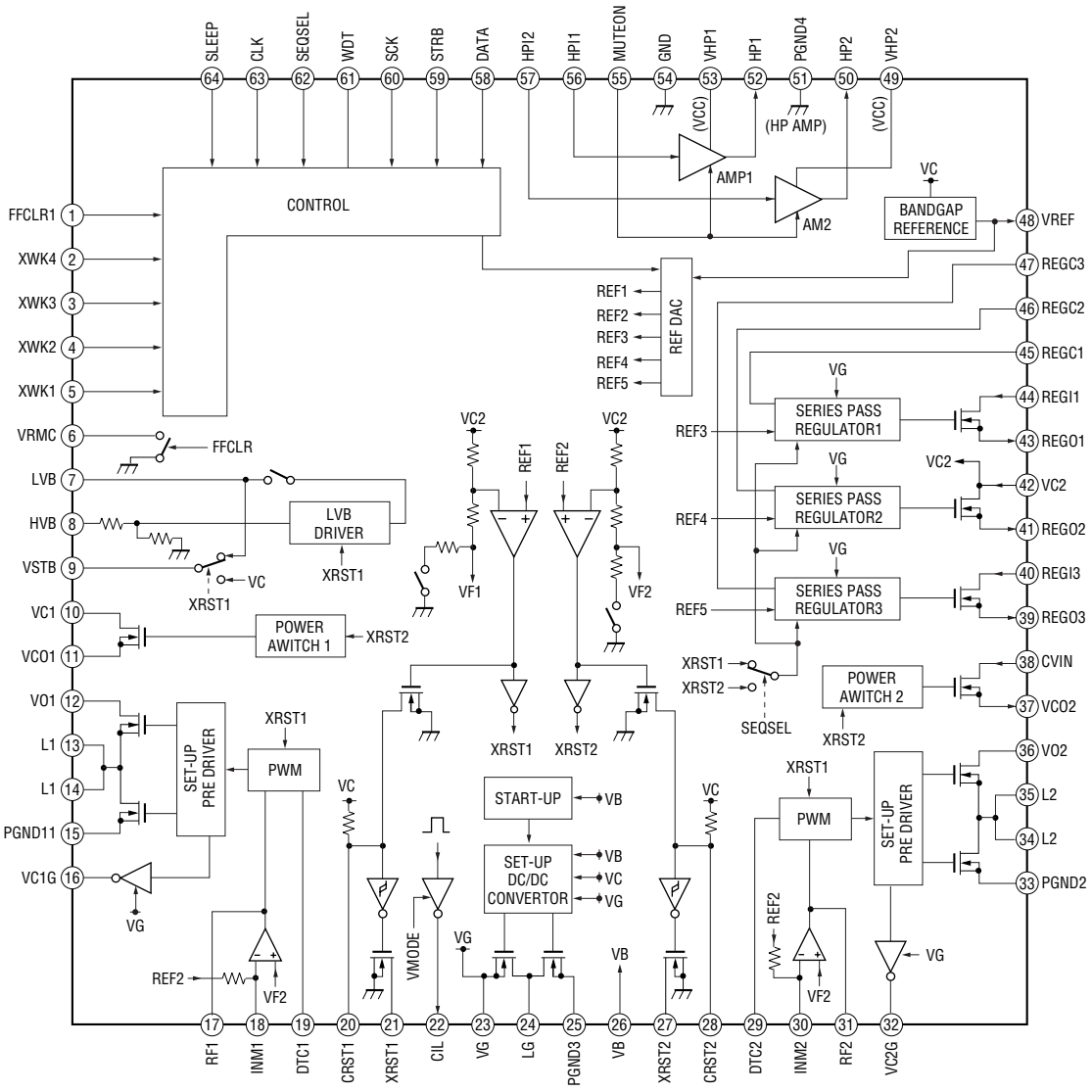
IC701 SC111258EPR2



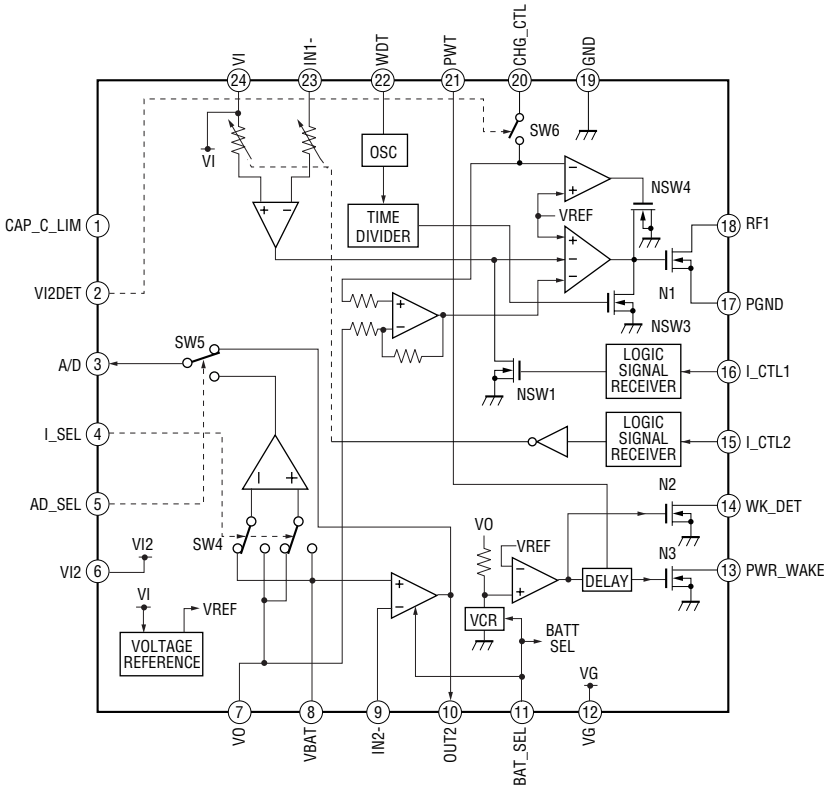
IC721 XC62EP2602MR



IC901 SC901580EPR2



IC951 SC901582EPR2



6-10. IC PIN FUNCTION DESCRIPTION

• IC501 SN761058AZQLR (RF AMP, FOCUS/TRACKING ERROR AMP)

Pin No.	Pin Name	I/O	Description
1	IX	I	I-V converted RF signal (IX) input from the optical pickup detector
2, 3	PS, EQ	—	Connected to the external capacitor for the RF and EQ
4	AGND	—	Ground terminal (analog system)
5, 6	OFC-C1, OFC-C2	—	Connect terminal to the external capacitor for the RF AC coupling
7	VREF10	O	Reference voltage (+0.6V) output terminal
8	VC	O	Middle point voltage (+0.9V) generation output terminal
9	RFO	O	Playback EFM RF signal output to the system controller
10	VREF09	O	Reference voltage (+0.9V) output terminal
11	AVCC2	—	Power supply terminal (+2.1V) (analog system)
12	PD-NI	I	Light amount monitor input terminal (non-invert input)
13	PD-I	I	Reference PWM signal input for the laser automatic power control from the system controller
14	PD-O	O	Light amount monitor output terminal
15	D-C	I	Signal (D) input from the optical pickup detector (AC input)
16	A-C	I	Signal (A) input from the optical pickup detector (AC input)
17	AGND	—	Ground terminal (analog system)
18	SMON	O	Servo signal monitor output to the system controller
19	ADIP-IN	I	ADIP duplex FM signal (22.05kHz + 1kHz) input terminal
20, 21	AGND	—	Ground terminal (analog system)
22	WPP-LPF	—	Connect terminal to the external capacitor for the TPP/WPP low-pass filter
23	ADFG	O	ADIP duplex FM signal (22.05kHz + 1kHz) output to the system controller
24	CDN	—	Connect terminal to the external capacitor for the low-pass filter of CSL divider denominator
25	CCSL2	—	Connect terminal to the external capacitor for the TPP/WPP low-pass filter
26	CLK	I	System clock signal (256Fs=11.2896MHz) input from the system controller
27	CPGND	—	Ground terminal (charge pump)
28	CN	—	Connected to the external capacitor for the charge pump
29	DVCC	—	Power supply terminal (+2.2V) (digital system)
30	CP	—	Connected to the external capacitor for the charge pump
31	CPOUT	O	power supply voltage output termanal for the charge pump
32	SCK	I	SSB serial clock signal input from the system controller
33	SBUS	I	SSB serial data input/output with the system controller
34	VGIN	I	Analog switch and OP amplifier power supply voltage input terminal
35	RESET	I	Reset signal input from the system controller “L”: reset
36	DGND	—	Ground terminal (digital system)
37	EFMO	O	EFM signal output terminal Not used
38	CIG	—	Connect terminal to the external capacitor for the low-pass filter of NPP divider denominator
39	ASSY	—	Asymmetry input terminal Not used
40	RFI	I	Playback EFM RF signal input terminal
41	ABCD	O	Light amount signal (ABCD) output to the system controller
42	FE	O	Focus error signal output to the system controller
43	TE	O	Tracking error signal output to the system controller
44	NPPO	O	NPP signal output terminal
45	OFTRK	I/O	Off track signal input terminal Not used
46	TON-C	—	Connect terminal to the external capacitor for TON hold
47	BOTM	O	Bottom hold signal output of the light amount signal (RF/ABCD) to the system controller

Pin No.	Pin Name	I/O	Description
48	PEAK	O	Peak hold signal output of the light amount signal (RF/ABCD) to the system controller
49	D	I	Signal (D) input from the optical pickup detector
50	A	I	Signal (A) input from the optical pickup detector
51	B	I	Signal (B) input from the optical pickup detector
52	C	I	Signal (C) input from the optical pickup detector
53	AVCC	—	Power supply terminal (+2.3V) (analog system)
54	JX	I	I-V converted RF signal (JX) input from the optical pickup detector
55	JY	I	I-V converted RF signal (JY) input from the optical pickup detector
56	IY	I	I-V converted RF signal (IY) input from the optical pickup detector

• IC801 CXD2680-207GA (SYSTEM CONTROLLER, DIGITAL SIGNAL PROCESSOR, 16M BIT D-RAM)

Pin No.	Pin Name	I/O	Description
1	OSCI	I	Resonator connection terminal for the system clock (22.5792MHz)
2	OSCO	O	Resonator connection terminal for the system clock (22.5792MHz)
3	VREFL	O	Reference voltage (+1.1V) output terminal to the headphone amplifier (for the built-in D/A converter L-CH)
4	AOUTL	O	Playback analog signal output terminal (L-CH)
5	AOUTR	O	Playback analog signal output terminal (R-CH)
6	VREFR	O	Reference voltage (+1.1V) output terminal to the headphone amplifier (for the built-in D/A converter R-CH)
7	ASYO	O	Playback EFM duplex signal output
8	ASYI	I	Playback EFM comparator slice level input
9	BIAS	I	Bias current input terminal for the playback EFM comparator
10	RFI	I	Playback EFM RF signal input from the RF amplifier
11	PCO	O	Phase comparison output terminal for the playback EFM system master PLL
12	FILI	I	Filter input terminal for the playback EFM system master PLL
13	FILO	O	Filter output terminal for the playback EFM system master PLL
14	CLTV	I	Internal VCO control voltage input terminal for the playback EFM system master PLL
15	PEAK	I	Peak hold signal input of the light amount signal (RF/ABCD) from the RF amplifier
16	BOTM	I	Bottom hold signal input of the light amount signal (RF/ABCD) from the RF amplifier
17	ABCD	I	Light amount signal (ABCD) input from the RF amplifier
18	FE	I	Focus error signal input from the RF amplifier
19	VC	I	Middle point voltage input from the RF amplifier
20	ADIO	O	Monitor output terminal of A/D converter input signal Not used
21	ADRB	I	The lower limit voltage of A/D converter input terminal Not ised
22	SE	I	Sled error signal input from the RF amplifier
23	TE	I	Tracking error signal input from the RF amplifier
24	AUX1	I	Auxiliary A/D input terminal Not used
25	ADRT	I	The upper limit voltage of A/D converter input terminal Not used
26	DCHG	I	Connecting terminal with the analog power supply of low impedance Not used
27	APC	I	Error signal input for the laser automatic power control Not used
28	ADFG	I	ADIP duplex FM signal (22.05±1kHz) input from the RF amplifier
29	APCREF	O	Reference PWM signal output for the laser automatic power control to the RF amplifier
30	TRDR	O	Tracking servo drive PWM signal output (–) to the coil driver
31	TFDR	O	Tracking servo drive PWM signal output (+) to the coil driver
32	FFDR	O	Focus servo drive PWM signal output (+) to the coil driver
33	FRDR	O	Focus servo drive PWM signal output (–) to the coil driver
34	FS4	O	176.4kHz clock signal output
35	SFDR	O	Sled servo drive PWM signal output to the motor driver
36	SPRD	O	Spindle motor drive control signal output (U) to the motor driver
37	SPFD	O	Spindle servo drive PWM signal output to the motor driver
38	SPDV	O	Spindle motor drive control signal output (V) to the motor driver
39	SPDW	O	Spindle motor drive control signal output (W) to the motor driver
40	SPCU	I	Spindle motor drive comparison signal input (U) from the motor driver
41	SPCV	I	Spindle motor drive comparison signal input (V) from the motor driver
42	SPCW	I	Spindle motor drive comparison signal input (W) from the motor driver
43	SLDV	O	Sled motor drive control signal output (V) to the motor driver

Pin No.	Pin Name	I/O	Description
44	SLDW	O	Sled motor drive control signal output (W) to the motor driver
45	SLCU	I	Sled motor drive comparison signal input (U) from the motor driver
46	SLCV	I	Sled motor drive comparison signal input (V) from the motor driver
47	SLCW	I	Sled motor drive comparison signal input (W) from the motor driver
48	SRDR	O	Sled motor drive control signal output (U) to the motor driver
49	DIN	I	Digital audio signal input terminal Not used
50	DADT	O	Audio data output terminal Not used
51	ADDT	I	Data input terminal Not used
52	KRCK	O	L/R sampling clock (44.1KHz) output to the external A/D converter Not used
53	XBCK	O	Bit clock (2.8224MHz) output to the external A/D converter Not used
54	FS256	O	11.2896MHz clock output
55	NC	O	Filter cutoff control signal output Not used
56	NC	I	Clock input from the external VCO Not used
57	LRCKI	I	Input terminal for the PCM data I/F/ ATRAC data I/F Not used
58	XBCKI	I	Input terminal for the PCM data I/F/ ATRAC data I/F Not used
59	DATAI	I	Input terminal for the PCM data I/F/ ATRAC data I/F Not used
60	NC	—	Not used
61	TSTDR1	O	Chip select signal output teminal for the external SDRAM Not used
62, 63	NC	—	Not used
64 to 66	MNT0 to 2	O	DSP monitor (0) to (2) output terminal Not used
67	MNT3	O	DSP monitor (3) output terminal
68	SENS	O	DSP internal status (DSP SENS monitor) signal output terminal Not used
69	TX	O	Record data output enable signal output Not used
70	RECP	O	Laser power changeover signal output Not used
71	EFMO	O	EFM encode data output for the record to the REC driver
72	TFMCK	I	FMCK signal input Not used
73	OFTRK	I/O	Tracking signal input/output Not used
74	XSKH	O	L circuit signal output Not used
75	XSKL	O	K-SHOCK circuit signal output Not used
76	DCLSOUTL	O	PWM modulator signal output for the D class headphone amplifier Not used
77	DCLSOUTR	O	PWM modulator signal output for the D class headphone amplifier Not used
78 to 85	TD0 to 7	—	TigerI/F data 0 to 7 terminal Not used
86	TREQ	—	TigerI/F REQUEST terminal Not used
87	TACK	—	TigerI/F ACK terminal Not used
88	PAUSE_KEY	I	Stop key detection input terminal Not used
89	PROTECT	I	Detection signal input terminal of the record check claw from the protect detection switch “H”: protect
90	OPT_DET	I	DIN plug detection signal input “H”: DIN plug detect Not used
91	XJACK_DET	I	LINE IN plug detection signal input “L”: LINE or OPT plug detect Not used
92	XMIC_DET	I	Microphone plug detection signal input “L”: microphone plug detect Not used
93	OPEN_CLOSE _ SW	I	Open/close detection switch of the upper panel input terminal “L”: when upper panel close
94	XCS_ADC	O	Chip select signal output to the A/D converter Not used
95	XPD_ADC	O	Power supply control signal output to the A/D converter Not used
96	CHG_CTL	O	Charge ON/OFF control signal output Not used
97	LCD_RST	O	Reset control signal output to the liquid crystal display module

Pin No.	Pin Name	I/O	Description
98	XMUTE	O	Analog muting control signal output to the headphone amplifier "L": muting ON
99	XPATCH	I	Patch function detection terminal "L": patch function (fixed at "L" in this set)
100	SI0	I	Serial data input from the nonvolatile memory
101	SO0	O	Serial data output to the nonvolatile memory and power control
102	SCK0	O	Serial clock output to the nonvolatile memory and power control
103	XGUM_ON	I	Rechargeable battery detection switch input terminal "L": rechargeable battery in detect
104	BEEP	O	Beep sound control signal output to the headphone amplifier
105	XOPT_CTL	O	Power supply ON/OFF control signal output for the DIN PD drive Not used
106	XHP_STBY	O	Power supply control signal output to the headphone amplifier Not used
107	AOUT_SEL	O	HP/LINE changeover signal output to the headphone amplifier Not used
108	REC_OPR_LED	O	DOWNLOAD LED ON/OFF control signal output terminal
109	MDVCC_CTL	O	Power supply control signal output for the OP modulation Not used
110	OPVCC_CTL	O	Power supply control signal output for the OP laser Not used
111	BATT_CTL	O	Control signal output for the voltage step up circuit in the external battery case Not used
112	VREC_CTL	O	VREC voltage control signal output Not used
113	XRST_CHG_IC	O	Reset signal output to the battery charge control IC
114, 115	PD_S0, 1	O	PD IC mode changeover signal output to the optical pick up
116	LINK_MON	O	Linking area monitor signal output Not used
117	PL_CTL	O	Plunger control signal output Not used
118	GND_SW	O	Ground changeover switch control signal output terminal Not used
119, 120	NC	O	Not used
121	SLD_MON	I	Sled servo monitor signal input
122	VLON	O	Not used
123	SLEEP	O	System sleep control signal output to the power control "H": sleep
124	FFCLR	O	Input latch output for the start switching to the power control
125	CHGI_CTL1	O	Charge current limit ON/OFF control signal output at the time of adaptor use "L": limit ON
126	CHGI_CTL2	O	Charge current limit value changeover control signal output at the time of adaptor use Not used
127	ORANGE_LED	O	Orange LED ON/OFF control signal output Not used
128	CHG_LED	O	LED ON/OFF control signal output for CHG (charge display) "H": LED ON
129	XTEST	I	Terminal for the test mode setting (normally open) "L": test mode
130	XRF_RST	O	Reset control signal output to the RF amplifier "L": reset
131	XEXT_PWR	I	External power supply (AC adaptor/charging stand) detection signal input "L": external power supply ON
132	XHOLD_SW	I	HOLD switch input terminal "L": hold ON
133	COUT_MON	I	Traverse count measurement monitor input
134	CHG_ADSEL	O	A/D terminal of the battery charge contro IC output selection signal output
135	CHGI_SEL	O	Charge/discharge changeover control signal output for the current sense amplifier "L": discharge, "H": charge
136	XDC_IN	I	DC plug detection signal input terminal "L": DC power supply, "H": battery
137	SPDL_MON	I	Spindle servo monitor signal input
138	XCS_PWR_IC	O	Chip select signal output to the power control
139, 140	NC	O	Control signal output for the D class headphone amplifier Not used
141	XCS_LCD	O	Chip select signal output to the liquid crystal display module Not used
142	LCD_STB	O	Strobe signal output to the liquid crystal display module
143	XRST_MTR _DRV	O	Reset control signal output to the motor driver "L": reset

Pin No.	Pin Name	I/O	Description
144	XCS_NV	O	Chip select signal output to the nonvolatile memory
145	CHG_PWM	O	Output voltage control signal output to the battery charge control
146	VREC_PWM	O	PWM signal output for the power supply voltage control to the REC driver
147	VL_PWM	O	PWM signal output for the laser power supply voltage control to the power control Not used
148	NJM_XMUTE	O	Muting control signal terminal (NJM type made by JRC) Not used
149	D_VO_PWM	O	Power supply control signal output for the D class headphone amplifier Not used
150	XCS_REC_DRV	O	Chip select signal output to the REC driver Not used
151	T_MARK_SW	I	T MARK (track mark) switch input terminal "L": track mark detection Not used
152	JOG_A	I	Jog dial pulse input from the switch & liquid crystal display module Not used
153	JOG_B	I	Jog dial pulse input from the switch & liquid crystal display module Not used
154, 155	NC	O	Not used
156	SSB_DATA	I/O	SSB data input/output with the RF amplifier
157	SSB_CLK	O	SSB clock output to the RF amplifier
158	VBUS_DET	I	USB power supply voltage detection terminal
159	VB_MON	I	Voltage monitor input terminal (A/D input) of the UNREG power supply Not used
160	CHG_MON	I	Decrement of voltage detection and charge/discharge current monitor input from the battery charge control
161	VREF_MON	I	Reference voltage monitor input (A/D input) from the RF amplifier
162	SET_KEY_1	I	Key input (A/D input) from the switch & liquid crystal display module
163	SET_KEY_2	I	Key input (A/D input) from the switch & liquid crystal display module
164	CRADLE_DET	I	USB cradle or battery case detection signal input terminal
165	HIDC_MON	I	HIGH DC voltage monitor input terminal (A/D input)
166	WK_DET	I	WAKE detection signal input terminal
167	BATT_MON	I	External battery voltage monitor input Not used
168	HALF_LOCK_SW	I	Open button detection switch input (A/D input) "L" : the open button is pressed
169	RMC_KEY	I	Key input (A/D input) terminal Not used
170	JOG_PUSH	I	Jog dial push detection signal input Not used
171	REC_KEY	I	PLAY_PAUSE_ENTER key input (A/D input)
172	END_SEARCH	I	DOWNLOAD key input (A/D input) Not used
173	RADIO_ON	I	RADIO ON detection signal input Not used
174	RMC_DTCK	I/O	TSB master data clock input/output or SSB data input/output
175	UDP	I/O	USB data (+) input terminal
176	UDM	I/O	USB data (–) input terminal
177	SUSPEND	O	USB suspend signal output Not used
178	UPUEN	O	USB pull-up resistor connection control output terminal
179	UOSCI	I	Resonator (48MHz) connection terminal for the USB oscillation circuit
180	UOSCO	O	Resonator (48MHz) connection terminal for the USB oscillation circuit
181	SI3	I	Not used
182	SO3	O	Not used
183	SCK3	I/O	Not used
184	MSIN	I	Not used
185	MSOUT	O	Not used
186	MSCK	I/O	Not used
187	RF_POWOR	O	Not used
188	LCD_POWOR	O	Not used
189	SP_AMP	O	Built-in speaker control signal output "H": activate Not used

Pin No.	Pin Name	I/O	Description
190	XHP_DET	I	Headphone jack detection signal input Not used
191	SET_CODE0	I	Input terminal for the set
192	SET_CODE1	I	Input terminal for the set
193	SET_CODE2	I	Input terminal for the set
194	SET_CODE3	I	Input terminal for the set
195, 196	NC	O	Not used
197	VBUS5V_DET	I	Not used
198	LG_DCR_CTL	O	Not used
199	MUTE	O	Analog muting control signal output to the headphone amplifier "H": muting ON Not used
200	CLV_PWR_SEL	O	CLV motor power supply selection control signal output Not used
201	CS_RTC	O	Chip select signal output to the real time clock Not used
202 to 204	MODE1 to 3	O	Power supply control signal output for the over write head to the REC driver
205, 206	HD_CON_1, 2	O	Over write head control signal output to the REC driver
207	TAT	I	Not used
208	TAN	I	Not used
209	NAR	I	Not used
210	IDO	I	Not used
211	SAK	O	Not used
212	XRST	I	System reset signal input from the power control "L": reset
213	TRST	I	Terminal for the test mode setting (normally fixed at "L")
214, 215	TEST0, 1	I	Input terminal for the main test (normally fixed at "L")
216 to 231	D0 to 15	—	DRAM data0 to 15 terminal Not used
232 to 245	A00 to 13	—	DRAM address0 to 13 terminal Not used
246	XCAS	—	DRAM CAS terminal Not used
247	XRAS	—	DRAM RAS terminal Not used
248	XWE	—	DRAM write enable terminal Not used
249	XCS	—	DRAM chip select terminal Not used
250	CLK	—	DRAM clock terminal Not used
251	CKE	—	DRAM clock enable terminal Not used
252	UDQM	—	DRAM byte mask terminal Not used
253	LDQM	—	DRAM byte mask terminal Not used
254	DVDD0	—	Power supply terminal (+1.2V) (for the DSP block)
255	DVSS0	—	Ground terminal (for the DSP block)
256	DVDD1	—	Power supply terminal (+1.2V) (for the DSP block)
257	DVSS1	—	Ground terminal (for the DSP block)
258	DVDD2	—	Power supply terminal (+1.2V) (for the DSP block)
259	DVSS2	—	Ground terminal (for the DSP block)
260	DVDD3	—	Power supply terminal (+1.2V) (for the DSP block)
261	DVSS3	—	Ground terminal (for the DSP block)
262	DVDD4	—	Power supply terminal (+1.2V) (for the DSP block)
263	DVSS4	—	Ground terminal (for the DSP block)
264	IFVDD0	—	Power supply terminal (+2.2V) (for the microcomputer I/F block)
265	IFVSS0	—	Ground terminal (for the microcomputer I/F block)
266	IFVDD1	—	Power supply terminal (+2.2V) (for the microcomputer I/F block)
267	IFVSS1	—	Ground terminal (for the microcomputer I/F block)
268	IFVDD2	—	Power supply terminal (+2.2V) (for the microcomputer I/F block)

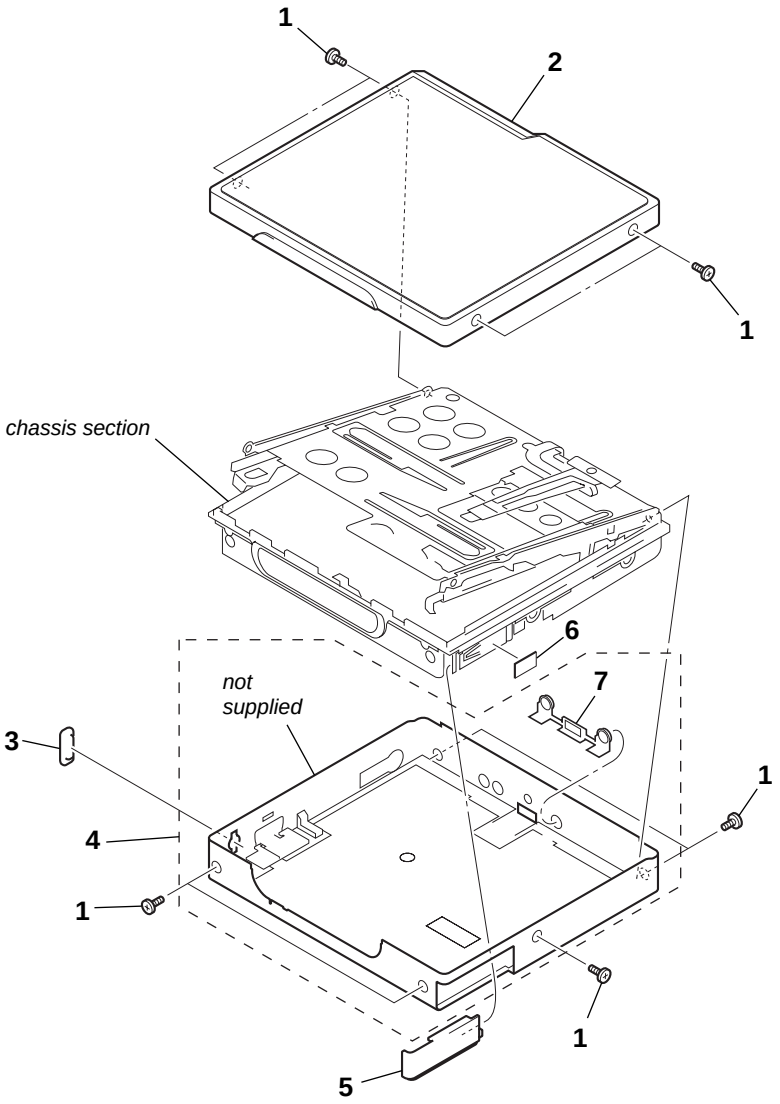
Pin No.	Pin Name	I/O	Description
269	IFVSS2	—	Ground terminal (for the microcomputer I/F block)
270	IFVDD3	—	Power supply terminal (+2.2V) (for the microcomputer I/F block)
271	IFVSS3	—	Ground terminal (for the microcomputer I/F block)
272	IFVDD4	—	Power supply terminal (+2.2V) (for the microcomputer I/F block)
273	IFVSS4	—	Ground terminal (for the microcomputer I/F block)
274	AVDD	—	Power supply terminal (+2.3V) (for the microcomputer analog)
275	AVSS	—	Ground terminal (for the microcomputer analog)
276	VDIOSC	—	Power supply terminal (+2.2V) (for the OSC cell)
277	VSIOSC	—	Ground terminal (for the OSC cell)
278	DAVDD	—	Power supply terminal (+2.2V) (for the built-in D/A converter)
279	DAVSS	—	Ground terminal (for the built-in D/A converter)
280	AVD1	—	Power supply terminal (+1.6V) (for the DSP asymmetry system analog)
281	AVS1	—	Ground terminal (for the DSP asymmetry system analog)
282	AVD2	—	Power supply terminal (+1.6V) (for the DSP servo system analog)
283	AVS2	—	Ground terminal (for the DSP servo system analog)
284	TSMVDD	—	Power supply terminal (+2.4V) (for the TSB master communication)
285	TSLVDD	—	Power supply terminal (+2.2V) (for the TSB slave I/F)
286	DRAMVDD1	—	Power supply terminal (+2.2V) (for DRAM)
287	DRAMVSS1	—	Ground terminal (for DRAM)
288	DRAMVDD2	—	Power supply terminal (+2.2V) (for DRAM)
289	DRAMVSS2	—	Ground terminal (for DRAM)
290	ITO	—	Power supply terminal (+2.2V) (for writing the flash memory)
291	MITY	—	Ground terminal (for writing the flash memory)
292	USBIFVDD	—	Power supply terminal (+3.3V) (for USB I/F)
293	MVDD	—	Power supply terminal (+2.2V) (for the microcomputer I/F block)
294	USBOSCVDD	—	Power supply terminal (+2.2V) (for the USB oscillation circuit)
295	USBOSCVSS	—	Ground terminal (for the USB oscillation circuit)
296	AVDPLL	—	Power supply terminal (+2.4V) (for PLL)
297	AVSPLL	—	Ground terminal (for PLL)
298	EVA	I	EVA terminal Not used
299	FVDD0	—	Power supply terminal (+2.2V) (for the built-in flash memory)
300	FVSS0	—	Ground terminal (for the built-in flash memory)
301, 302	DVDD5, 6	—	Power supply (+1.2V) terminal
303, 304	DRAMVDD3, 4	—	Power supply terminal (+2.2V) (for DRAM)
305 to 312	MSAK	—	Not used

SECTION 7
EXPLODED VIEWS

NOTE:
- -XX and -X mean standardized parts, so they may have some difference from the original one.
- Color Indication of Appearance Parts
  Example:
  KNOB, BALANCE (WHITE) . . . (RED)
  ↑ ↑
  Parts Color Cabinet's Color
- Abbreviation
  HK : Hong Kong model
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Accessories are given in the last of the electrical parts list.

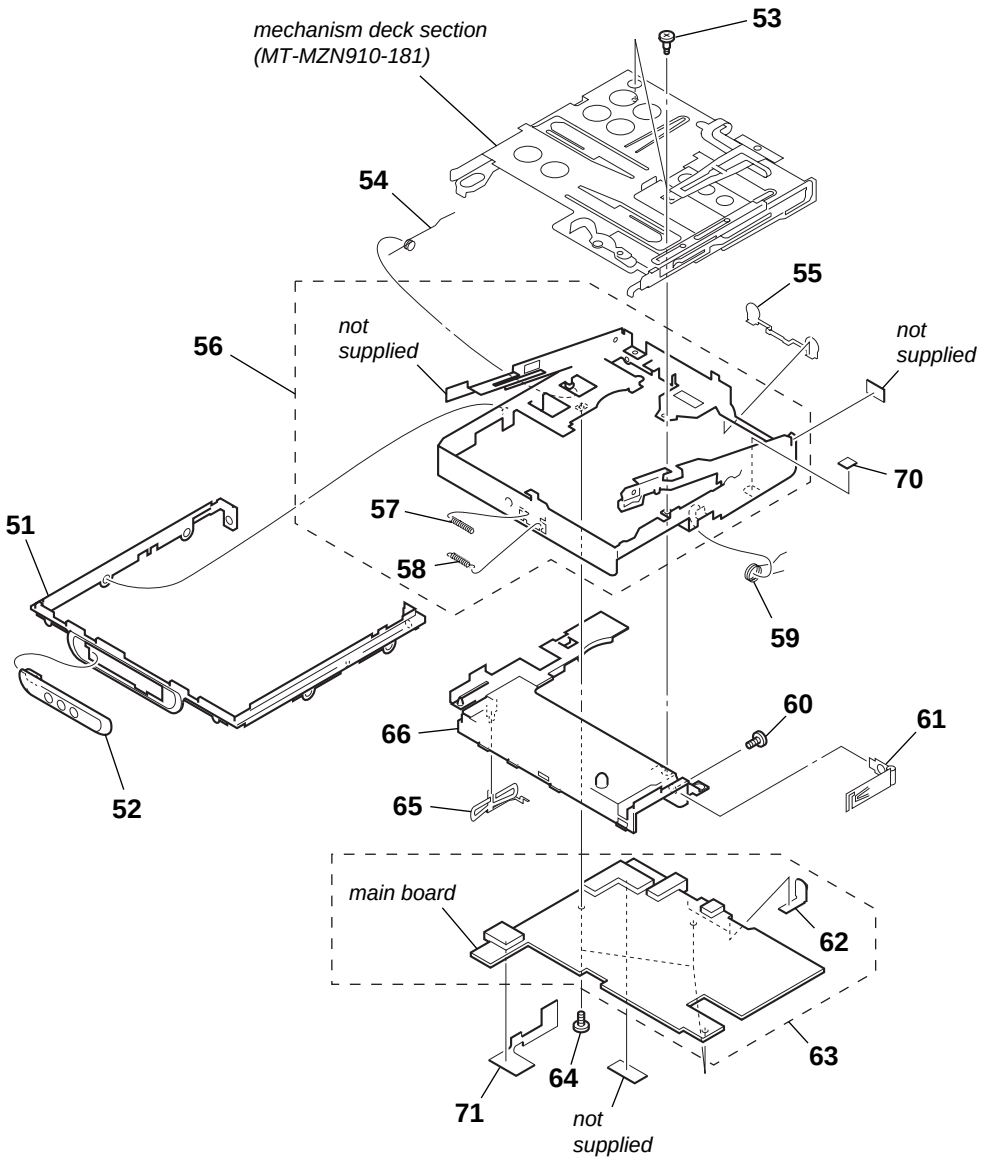
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

7-1. PANEL SECTION



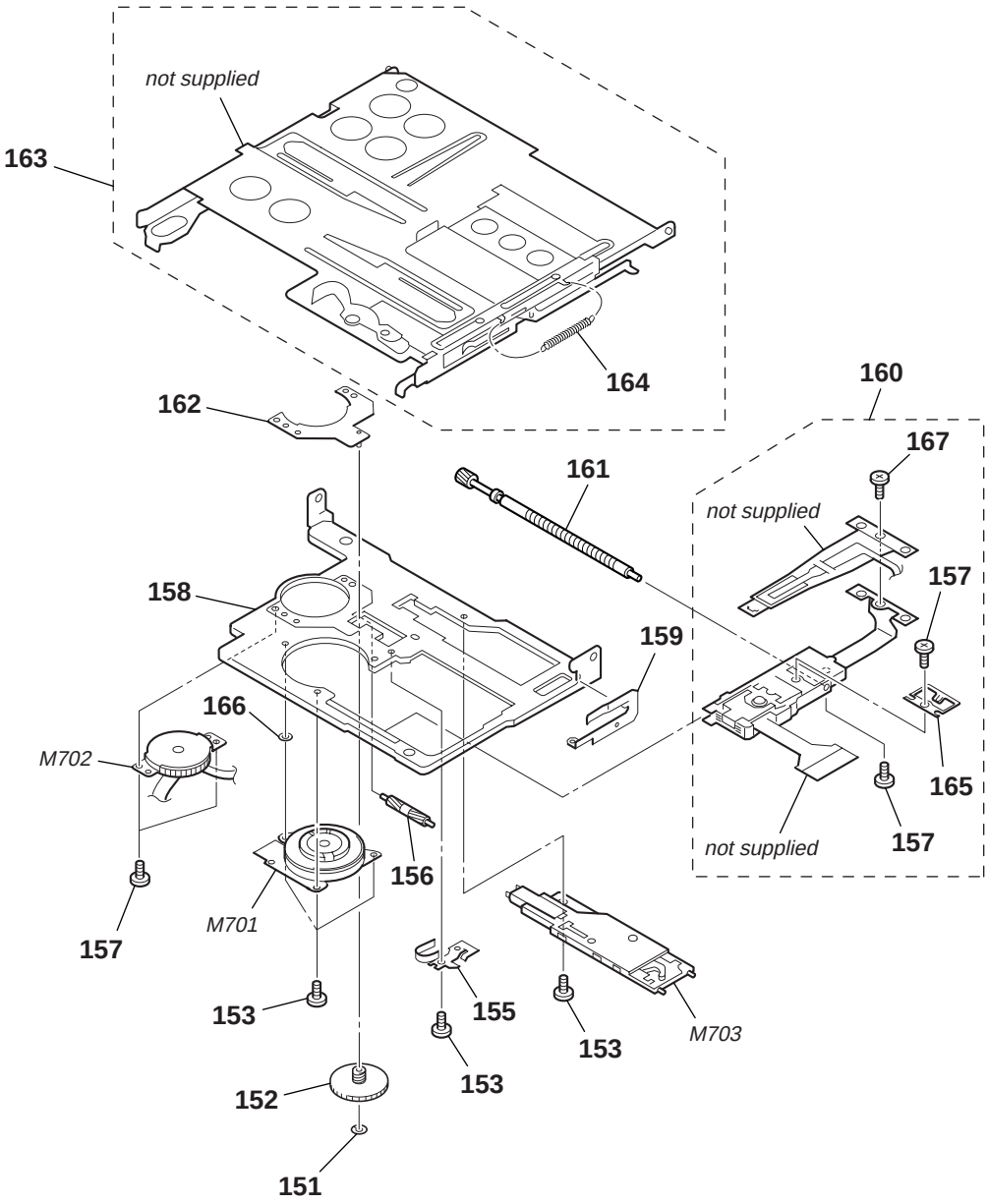
Ref. No.	Part No.	Description	Remark
1	3-225-873-09	SCREW (M1.4) (for SILVER, ORANGE)	
1	3-225-873-11	SCREW (M1.4) (for BLACK)	
2	X-3383-672-2	PANEL (S) SUB ASSY, UPPER (SILVER)	
2	X-3383-673-2	PANEL (B) SUB ASSY, UPPER (BLACK)	
2	X-3383-674-2	PANEL (D) SUB ASSY, UPPER (ORANGE)	
3	3-254-505-01	STRAPHOLE	
4	X-3383-979-1	PANEL (S) SUB ASSY, BOTTOM (CE) (SILVER)	(AEP, UK)
4	X-3383-980-1	PANEL (B) SUB ASSY, BOTTOM (CE) (BLACK)	(AEP, UK)
4	X-3383-981-1	PANEL (D) SUB ASSY, BOTTOM (CE) (ORANGE)	(AEP, UK)
4	X-3384-121-1	PANEL SUB ASSY (S), BOTTOM (SILVER)	(E, HK)
4	X-3384-122-1	PANEL SUB ASSY (B), BOTTOM (BLACK)	(E, HK)
5	3-246-496-01	LID, BATTERY CASE (SILVER)	
5	3-246-496-31	LID, BATTERY CASE (BLACK)	
5	3-246-496-41	LID, BATTERY CASE (ORANGE)	
6	3-255-184-01	SHEET (DROP B)	
7	4-219-968-01	COLLAR (DC IN)	

7-2. CHASSIS SECTION



Ref. No.	Part No.	Description	Remark
51	3-246-521-02	BELT, ORNAMENTAL	
52	3-246-522-01	KNOB (OPEN)	
53	3-246-996-01	SCREW (MD), STEP	
54	3-246-526-01	SPRING (L)	
55	3-246-498-01	ESCUTCHEON (B)	
56	X-3382-651-2	CHASSIS ASSY, SET	
57	3-246-533-01	SPRING (LOCK), COMPRESSION	
58	3-247-941-01	SPRING, TENSION	
59	3-246-528-01	SPRING (R)	
60	3-234-449-11	SCREW (M1.4)	
61	X-3382-650-1	TERMINAL (PLUS) ASSY, BATTERY	
62	3-246-497-02	TERMINAL BOARD (AA BATTERY)	
* 63	A-3683-397-B	MAIN BOARD, COMPLETE (for service)	(E, HK)
* 63	A-4541-302-B	MAIN BOARD, COMPLETE (for service)	(AEP, UK)
64	3-238-876-04	SCREW (M1.4), TOOTHED LOCK	
65	3-246-519-01	BOARD (MINUS), TERMINAL	
66	3-246-518-02	CASE (BATTERY)	
70	3-254-713-01	SHEET (DROP A)	
71	3-254-672-01	SHEET (RADIATION B)	

7-3. MECHANISM DECK SECTION (MT-MZN910-181)



The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Ref. No.	Part No.	Description	Remark
151	3-338-645-31	WASHER (0.8-2.5)	
152	3-245-405-02	GEAR (BSA)	
153	3-248-370-01	SCREW, SELF TAP	
155	3-244-880-01	SPRING, THRUST RETAINER	
156	3-244-883-01	GEAR (SB)	
157	3-225-996-17	SCREW (M1.4)(EG),PRECISION PAN	
158	3-245-013-02	CHASSIS (REC)	
159	3-245-021-02	PLATE, RATCHET	
⚠160	X-3382-955-1	OP SERVICE ASSY (ABX-1R)	
161	A-3174-609-A	SCREW BLOCK ASSY, LEAD	
162	X-3382-417-1	BASE ASSY, MOTOR	
163	X-3382-416-5	HOLDER ASSY	
164	3-245-020-02	SPRING (EJECT), TENSION	
165	3-244-879-01	SPRING, RACK	
166	4-997-677-21	WASHER	
167	3-239-404-01	SCREW (M1.4)	
M701	8-835-782-01	MOTOR, DC SSM18D/C-NP (SPINDLE)	
M702	8-835-779-01	MOTOR, DC SSM22A/C-NP (SLED)	
M703	1-477-519-11	MOTOR UNIT, DC (OVER WRITE HEAD UP/DOWN)	

SECTION 8
ELECTRICAL PARTS LIST

MAIN

NOTE:

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX and -X mean standardized parts, so they may have some difference from the original one.
- RESISTORS
  All resistors are in ohms.
  METAL: Metal-film resistor.
  METAL OXIDE: Metal oxide-film resistor.
  F: nonflammable
- Abbreviation
  HK : Hong Kong model
- Items marked "*" are not stocked since they are seldom required for routine service.
  Some delay should be anticipated when ordering these items.
- SEMICONDUCTORS
  In each case, u: µ, for example:
  uA. . : µA. . uPA. . : µPA. .
  uPB. . : µPB. . uPC. . : µPC. .
  uPD. . : µPD. .
- CAPACITORS
  uF: µF
- COILS
  uH: µH

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

When indicating parts by reference number, please include the board.

Ref. No.	Part No.	Description			Remark
*	A-3683-397-B	MAIN BOARD, COMPLETE (for service) (E, HK)			
*	A-4541-302-B	MAIN BOARD, COMPLETE (for service) (AEP, UK)			
		**********			
	3-246-497-02	TERMINAL BOARD (AA BATTERY)			
		< CAPACITOR >			
C108	1-164-937-11	CERAMIC CHIP	0.001uF	10%	50V
C181	1-125-837-11	CERAMIC CHIP	1uF	10%	6.3V
C182	1-164-941-11	CERAMIC CHIP	0.0047uF	10%	16V
C183	1-164-939-11	CERAMIC CHIP	0.0022uF	10%	50V
C184	1-135-868-95	TANTALUM CHIP	22uF	20%	2.5V
C185	1-113-600-11	TANTALUM CHIP	2.2uF	20%	6.3V
C186	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C187	1-164-935-11	CERAMIC CHIP	470PF	10%	50V
C208	1-164-937-11	CERAMIC CHIP	0.001uF	10%	50V
C281	1-125-837-11	CERAMIC CHIP	1uF	10%	6.3V
C282	1-164-941-11	CERAMIC CHIP	0.0047uF	10%	16V
C283	1-164-939-11	CERAMIC CHIP	0.0022uF	10%	50V
C284	1-135-868-95	TANTALUM CHIP	22uF	20%	2.5V
C285	1-113-600-11	TANTALUM CHIP	2.2uF	20%	6.3V
C286	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C287	1-164-935-11	CERAMIC CHIP	470PF	10%	50V
C339	1-164-937-11	CERAMIC CHIP	0.001uF	10%	50V
C381	1-125-837-11	CERAMIC CHIP	1uF	10%	6.3V
C382	1-127-895-11	TANTALUM CHIP	22uF	20%	4V
C383	1-137-858-11	TANTALUM CHIP	47uF	20%	6.3V
C384	1-137-858-11	TANTALUM CHIP	47uF	20%	6.3V
C385	1-127-895-11	TANTALUM CHIP	22uF	20%	4V
C386	1-127-574-11	TANTALUM CHIP	22uF	20%	6.3V
C387	1-113-600-11	TANTALUM CHIP	2.2uF	20%	6.3V
C388	1-125-926-11	TANTALUM CHIP	4.7uF	20%	6.3V
C389	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C391	1-128-964-11	TANTALUM CHIP	100uF	20%	6.3V
C392	1-128-964-11	TANTALUM CHIP	100uF	20%	6.3V
C502	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C504	1-125-926-11	TANTALUM CHIP	4.7uF	20%	6.3V
C505	1-125-840-11	TANTALUM CHIP	10uF	20%	6.3V
C506	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C507	1-100-442-11	TANTALUM CHIP	10uF	20%	6.3V
C508	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C510	1-125-840-11	TANTALUM CHIP	10uF	20%	6.3V
C511	1-164-850-11	CERAMIC CHIP	10PF	0.5PF	50V
C512	1-164-850-11	CERAMIC CHIP	10PF	0.5PF	50V
C513	1-107-819-11	CERAMIC CHIP	0.022uF	10%	16V
C514	1-164-939-11	CERAMIC CHIP	0.0022uF	10%	50V
C519	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C520	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C522	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C523	1-164-939-11	CERAMIC CHIP	0.0022uF	10%	50V
C524	1-125-837-11	CERAMIC CHIP	1uF	10%	6.3V
C526	1-119-923-11	CERAMIC CHIP	0.047uF	10%	10V
C527	1-164-941-11	CERAMIC CHIP	0.0047uF	10%	16V
C528	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C529	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C533	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C534	1-164-941-11	CERAMIC CHIP	0.0047uF	10%	16V
C535	1-125-837-11	CERAMIC CHIP	1uF	10%	6.3V
C537	1-107-819-11	CERAMIC CHIP	0.022uF	10%	16V
C538	1-107-819-11	CERAMIC CHIP	0.022uF	10%	16V
C540	1-164-941-11	CERAMIC CHIP	0.0047uF	10%	16V
C547	1-117-919-11	TANTALUM CHIP	10uF	20%	6.3V
C550	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C601	1-127-895-11	TANTALUM CHIP	22uF	20%	4V
C602	1-127-895-11	TANTALUM CHIP	22uF	20%	4V
C603	1-125-837-11	CERAMIC CHIP	1uF	10%	6.3V
C604	1-127-895-11	TANTALUM CHIP	22uF	20%	4V
C605	1-127-895-11	TANTALUM CHIP	22uF	20%	4V
C606	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C607	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C608	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C610	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C612	1-164-874-11	CERAMIC CHIP	100PF	5%	50V
C613	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C616	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C617	1-117-919-11	TANTALUM CHIP	10uF	20%	6.3V
C628	1-137-762-11	TANTALUM CHIP	10uF	20%	4V
C644	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C645	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C647	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C648	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C659	1-164-937-11	CERAMIC CHIP	0.001uF	10%	50V
C660	1-164-939-11	CERAMIC CHIP	0.0022uF	10%	50V
C661	1-128-694-11	TANTALUM CHIP	22uF	20%	10V
C672	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C673	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C674	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V

MAIN

Ref. No.	Part No.	Description			Remark
C701	1-119-923-11	CERAMIC CHIP	0.047uF	10%	10V
C702	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C703	1-119-923-11	CERAMIC CHIP	0.047uF	10%	10V
C704	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C705	1-119-923-11	CERAMIC CHIP	0.047uF	10%	10V
C706	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C708	1-107-819-11	CERAMIC CHIP	0.022uF	10%	16V
C710	1-107-819-11	CERAMIC CHIP	0.022uF	10%	16V
C712	1-107-819-11	CERAMIC CHIP	0.022uF	10%	16V
C715	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C717	1-125-891-11	CERAMIC CHIP	0.47uF	10%	10V
C718	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C719	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C720	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C721	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C722	1-117-919-11	TANTALUM CHIP	10uF	20%	6.3V
C723	1-135-837-11	TANTALUM CHIP	22uF	20%	6.3V
C724	1-131-595-11	TANTALUM CHIP	10uF	20%	10V
C725	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C801	1-131-860-11	TANTALUM CHIP	4.7uF	20%	10V
C802	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C803	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C804	1-117-919-11	TANTALUM CHIP	10uF	20%	6.3V
C805	1-100-442-11	TANTALUM CHIP	10uF	20%	6.3V
C806	1-100-442-11	TANTALUM CHIP	10uF	20%	6.3V
C807	1-100-442-11	TANTALUM CHIP	10uF	20%	6.3V
C808	1-164-937-11	CERAMIC CHIP	0.001uF	10%	50V
C809	1-164-846-11	CERAMIC CHIP	6PF	0.5PF	50V
C810	1-164-846-11	CERAMIC CHIP	6PF	0.5PF	50V
C811	1-125-837-11	CERAMIC CHIP	1uF	10%	6.3V
C812	1-125-837-11	CERAMIC CHIP	1uF	10%	6.3V
C813	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C814	1-125-891-11	CERAMIC CHIP	0.47uF	10%	10V
C815	1-164-935-11	CERAMIC CHIP	470PF	10%	50V
C817	1-125-837-11	CERAMIC CHIP	1uF	10%	6.3V
C818	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C819	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C820	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C821	1-107-819-11	CERAMIC CHIP	0.022uF	10%	16V
C822	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C823	1-107-819-11	CERAMIC CHIP	0.022uF	10%	16V
C825	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C826	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C827	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C828	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C829	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C830	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C831	1-137-858-11	TANTALUM CHIP	47uF	20%	6.3V
C837	1-164-937-11	CERAMIC CHIP	0.001uF	10%	50V
C838	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C840	1-119-923-11	CERAMIC CHIP	0.047uF	10%	10V
C841	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C843	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C844	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C845	1-107-819-11	CERAMIC CHIP	0.022uF	10%	16V
C851	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C901	1-100-396-11	TANTALUM CHIP	4.7uF	20%	16V
C902	1-137-858-11	TANTALUM CHIP	47uF	20%	6.3V
C903	1-137-858-11	TANTALUM CHIP	47uF	20%	6.3V
C904	1-137-858-11	TANTALUM CHIP	47uF	20%	6.3V
C905	1-137-858-11	TANTALUM CHIP	47uF	20%	6.3V
C906	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C907	1-137-858-11	TANTALUM CHIP	47uF	20%	6.3V
C908	1-100-396-11	TANTALUM CHIP	4.7uF	20%	16V
C911	1-100-442-11	TANTALUM CHIP	10uF	20%	6.3V
C913	1-117-919-11	TANTALUM CHIP	10uF	20%	6.3V
C915	1-117-919-11	TANTALUM CHIP	10uF	20%	6.3V
C917	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C921	1-164-937-11	CERAMIC CHIP	0.001uF	10%	50V
C922	1-164-937-11	CERAMIC CHIP	0.001uF	10%	50V
C931	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C932	1-164-937-11	CERAMIC CHIP	0.001uF	10%	50V
C933	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C934	1-164-937-11	CERAMIC CHIP	0.001uF	10%	50V
C935	1-164-937-11	CERAMIC CHIP	0.001uF	10%	50V
C936	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C937	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C938	1-164-937-11	CERAMIC CHIP	0.001uF	10%	50V
C939	1-125-838-11	CERAMIC CHIP	2.2uF	10%	6.3V
C940	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C943	1-125-837-11	CERAMIC CHIP	1uF	10%	6.3V
C944	1-125-837-11	CERAMIC CHIP	1uF	10%	6.3V
C950	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C951	1-137-858-11	TANTALUM CHIP	47uF	20%	6.3V
C952	1-137-858-11	TANTALUM CHIP	47uF	20%	6.3V
C954	1-164-941-11	CERAMIC CHIP	0.0047uF	10%	16V
C955	1-137-710-11	CERAMIC CHIP	10uF	20%	6.3V
C956	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C957	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C958	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C960	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C961	1-125-837-11	CERAMIC CHIP	1uF	10%	6.3V
C962	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C963	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C964	1-137-858-11	TANTALUM CHIP	47uF	20%	6.3V
C965	1-137-858-11	TANTALUM CHIP	47uF	20%	6.3V
C966	1-131-595-11	TANTALUM CHIP	10uF	20%	10V
C968	1-137-858-11	TANTALUM CHIP	47uF	20%	6.3V
C969	1-137-858-11	TANTALUM CHIP	47uF	20%	6.3V
C970	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C971	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C972	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
		< CONNECTOR >			
CN501	1-816-934-21	CONNECTOR, FFC/FPC 22P			
CN701	1-816-935-21	CONNECTOR, FFC/FPC 10P			
CN951	1-816-868-21	CONNECTOR (POWER JACK)			
CN952	1-816-956-21	CONNECTOR (SQUARE TYPE)(USB) 5P			
		< DIODE >			
D101	8-719-046-91	DIODE MA2S111-TX			
D201	8-719-046-91	DIODE MA2S111-TX			
D302	8-719-081-71	DIODE DF8A6.8FK (TE85R)			
D381	8-719-046-91	DIODE MA2S111-TX			
D602	8-719-081-35	DIODE MA2YD1700LS0			

Ref. No.	Part No.	Description	Remark
D603	8-719-081-35	DIODE MA2YD1700LS0	
D604	6-500-483-01	DIODE MA22D2800LS0	
D653	6-500-483-01	DIODE MA22D2800LS0	
D901	8-719-420-51	DIODE MA729-TX	
D902	6-500-483-01	DIODE MA22D2800LS0	
D904	6-500-483-01	DIODE MA22D2800LS0	
D951	6-500-369-01	DIODE FT1J3TP	
D952	6-500-483-01	DIODE MA22D2800LS0	
D1001	6-500-605-01	LED CL-270YG-C-TSL	
D1002	6-500-604-01	LED CL-270HR-C-TSL	
		< FERRITE BEAD >	
FB841	1-414-228-11	FERRITE 0uH	
FB842	1-414-228-11	FERRITE 0uH	
FB843	1-414-228-11	FERRITE 0uH	
FB844	1-414-228-11	FERRITE 0uH	
FB981	1-500-284-21	FERRITE 0uH	
		< IC >	
IC381	6-700-662-01	IC AN17020A-VB	
@ IC501	6-703-946-01	IC SN761058AZQLR	
IC601	6-702-782-01	IC XPC18A22AEPR2	
IC651	8-759-569-80	IC XC6367A331MR	
IC671	6-700-958-01	IC XC61FS1YXXMR	
IC701	6-702-786-01	IC SC111258EPR2	
IC721	6-703-931-01	IC XC62EP2602MR	
@ IC801	8-753-001-00	IC CXD2680-207GA	
IC851	(not supplied)	IC AK6510CL-L	
IC901	6-702-865-01	IC SC901580EPR2	
IC951	6-702-867-01	IC SC901582EPR2	
		< JACK >	
J303	1-816-944-11	CONNECTOR (i)	
J951	1-816-936-21	JACK, DC (DC IN 3V)	
		< COIL >	
L381	1-469-535-21	INDUCTOR 10uH	
L501	1-469-535-21	INDUCTOR 10uH	
L502	1-469-535-21	INDUCTOR 10uH	
L504	1-469-535-21	INDUCTOR 10uH	
L505	1-469-535-21	INDUCTOR 10uH	
L602	1-456-287-21	INDUCTOR 10uH	
L603	1-469-535-21	INDUCTOR 10uH	
L604	1-469-535-21	INDUCTOR 10uH	
L651	1-456-274-21	INDUCTOR 10uH	
L802	1-469-535-21	INDUCTOR 10uH	
L803	1-469-535-21	INDUCTOR 10uH	
L901	1-400-306-11	INDUCTOR 100uH	
L903	1-419-354-21	INDUCTOR 22uH	
L904	1-419-646-21	INDUCTOR 47uH	
		< TRANSISTOR >	
Q501	8-729-922-10	TRANSISTOR 2SA1577-T106-QR	
Q502	8-729-034-59	TRANSISTOR 2SA1745-6.7-TL	
Q503	8-729-429-44	TRANSISTOR XP1501-TXE	
Q601	6-550-356-01	FET MCH6616-TL-E	
Q602	6-550-357-01	FET CPH5614-TL-E	

Ref. No.	Part No.	Description			Remark
Q608	8-729-053-71	FET	TS8K1TB		
Q651	8-729-047-48	TRANSISTOR	UMD12N-TR		
Q652	8-729-046-45	FET	SI2302DS-T1		
Q653	8-729-041-51	TRANSISTOR	FMMT617TA		
Q671	8-729-426-51	TRANSISTOR	XP1210-TXE		
Q701	8-729-046-45	FET	SI2302DS-T1		
Q702	8-729-427-74	TRANSISTOR	XP4601-TXE		
Q703	8-729-427-74	TRANSISTOR	XP4601-TXE		
Q704	8-729-046-45	FET	SI2302DS-T1		
Q705	8-729-037-75	TRANSISTOR	UN9214J-(TX).SO		
Q721	8-729-039-86	TRANSISTOR	FMMT717TA		
Q951	6-550-326-01	TRANSISTOR	FZT968TA		
Q952	8-729-037-75	TRANSISTOR	UN9214J-(TX).SO		
Q1001	8-729-037-73	TRANSISTOR	UN9212J-(TX).SO		
		< RESISTOR >			
R181	1-208-699-11	METAL CHIP	4.7K	0.5%	1/16W
R183	1-218-965-11	RES-CHIP	10K	5%	1/16W
R184	1-208-635-11	METAL CHIP	10	0.5%	1/16W (AEP, UK)
R184	1-220-803-11	RES-CHIP	4.7	5%	1/16W (E, HK)
R185	1-218-933-11	RES-CHIP	22	5%	1/16W
R186	1-218-990-11	SHORT CHIP	0		
R281	1-208-699-11	METAL CHIP	4.7K	0.5%	1/16W
R283	1-218-965-11	RES-CHIP	10K	5%	1/16W
R284	1-208-635-11	METAL CHIP	10	0.5%	1/16W (AEP, UK)
R284	1-220-803-11	RES-CHIP	4.7	5%	1/16W (E, HK)
R285	1-218-933-11	RES-CHIP	22	5%	1/16W
R286	1-218-990-11	SHORT CHIP	0		
R381	1-208-707-11	METAL CHIP	10K	0.5%	1/16W
R382	1-218-981-11	RES-CHIP	220K	5%	1/16W
R384	1-208-943-11	METAL CHIP	220K	0.5%	1/16W
R387	1-218-977-11	RES-CHIP	100K	5%	1/16W
R388	1-220-803-11	RES-CHIP	4.7	5%	1/16W
R501	1-218-977-11	RES-CHIP	100K	5%	1/16W
R502	1-218-446-11	METAL CHIP	1	5%	1/10W
R503	1-218-446-11	METAL CHIP	1	5%	1/10W
R507	1-208-707-11	METAL CHIP	10K	0.5%	1/16W
R508	1-208-683-11	METAL CHIP	1K	0.5%	1/16W
R509	1-216-864-11	METAL CHIP	0	5%	1/10W
R510	1-218-990-11	SHORT CHIP	0		
R511	1-218-990-11	SHORT CHIP	0		
R517	1-218-965-11	RES-CHIP	10K	5%	1/16W
R518	1-218-977-11	RES-CHIP	100K	5%	1/16W
R519	1-218-965-11	RES-CHIP	10K	5%	1/16W
R520	1-218-973-11	RES-CHIP	47K	5%	1/16W
R521	1-218-973-11	RES-CHIP	47K	5%	1/16W
R603	1-218-965-11	RES-CHIP	10K	5%	1/16W
R604	1-218-965-11	RES-CHIP	10K	5%	1/16W
R605	1-218-990-11	SHORT CHIP	0		
R615	1-216-789-11	METAL CHIP	2.2	5%	1/10W
R616	1-216-789-11	METAL CHIP	2.2	5%	1/10W
R641	1-218-985-11	RES-CHIP	470K	5%	1/16W
R642	1-218-957-11	RES-CHIP	2.2K	5%	1/16W
R643	1-218-969-11	RES-CHIP	22K	5%	1/16W
R655	1-218-953-11	RES-CHIP	1K	5%	1/16W

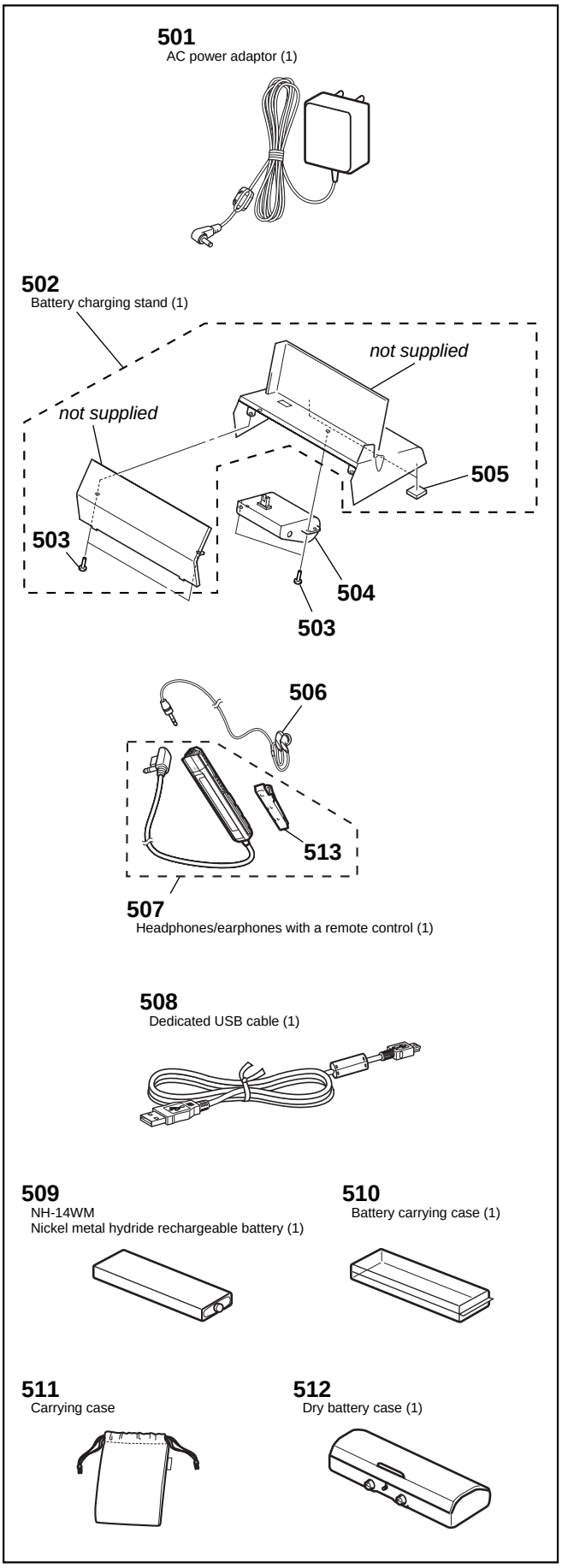
@Replacement of IC501 (SN761058AZQLR) and IC801 (CXD2680-207GA) used in this set requires a special tool.

When IC851 is damaged, replace the MAIN board.

MAIN

Ref. No.	Part No.	Description			Remark
R656	1-218-985-11	RES-CHIP	470K	5%	1/16W
R658	1-218-961-11	RES-CHIP	4.7K	5%	1/16W
R659	1-218-957-11	RES-CHIP	2.2K	5%	1/16W
R660	1-218-941-11	RES-CHIP	100	5%	1/16W
R672	1-218-977-11	RES-CHIP	100K	5%	1/16W
R673	1-218-977-11	RES-CHIP	100K	5%	1/16W
R674	1-218-985-11	RES-CHIP	470K	5%	1/16W
R701	1-218-990-11	SHORT CHIP	0		
R702	1-218-989-11	RES-CHIP	1M	5%	1/16W
R703	1-218-989-11	RES-CHIP	1M	5%	1/16W
R704	1-218-981-11	RES-CHIP	220K	5%	1/16W
R705	1-218-989-11	RES-CHIP	1M	5%	1/16W
R706	1-218-989-11	RES-CHIP	1M	5%	1/16W
R707	1-218-973-11	RES-CHIP	47K	5%	1/16W
R708	1-218-953-11	RES-CHIP	1K	5%	1/16W
R709	1-218-953-11	RES-CHIP	1K	5%	1/16W
R710	1-218-981-11	RES-CHIP	220K	5%	1/16W
R711	1-218-973-11	RES-CHIP	47K	5%	1/16W
R712	1-218-945-11	RES-CHIP	220	5%	1/16W
R713	1-218-989-11	RES-CHIP	1M	5%	1/16W
R721	1-218-949-11	RES-CHIP	470	5%	1/16W
R722	1-218-953-11	RES-CHIP	1K	5%	1/16W
R723	1-218-990-11	SHORT CHIP	0		
R802	1-218-990-11	SHORT CHIP	0		
R803	1-208-635-11	RES-CHIP	10	5%	1/16W
R804	1-218-937-11	RES-CHIP	47	5%	1/16W
R805	1-218-990-11	SHORT CHIP	0		
R806	1-218-990-11	SHORT CHIP	0		
R807	1-218-965-11	RES-CHIP	10K	5%	1/16W
R808	1-218-977-11	RES-CHIP	100K	5%	1/16W
R809	1-218-977-11	RES-CHIP	100K	5%	1/16W
R811	1-218-981-11	RES-CHIP	220K	5%	1/16W
R813	1-218-953-11	RES-CHIP	1K	5%	1/16W
R814	1-218-957-11	RES-CHIP	2.2K	5%	1/16W
R815	1-218-953-11	RES-CHIP	1K	5%	1/16W
R816	1-218-945-11	RES-CHIP	220	5%	1/16W
R817	1-220-804-11	RES-CHIP	2.2M	5%	1/16W
R818	1-218-989-11	RES-CHIP	1M	5%	1/16W
R819	1-208-691-11	METAL CHIP	2.2K	0.5%	1/16W
R820	1-208-691-11	METAL CHIP	2.2K	0.5%	1/16W
R821	1-208-927-11	METAL CHIP	47K	0.5%	1/16W
R822	1-208-943-11	METAL CHIP	220K	0.5%	1/16W
R823	1-218-990-11	SHORT CHIP	0		
R824	1-218-985-11	METAL CHIP	470K	0.5%	1/16W
R825	1-218-969-11	RES-CHIP	22K	5%	1/16W
R826	1-218-957-11	RES-CHIP	2.2K	5%	1/16W
R827	1-218-961-11	RES-CHIP	4.7K	5%	1/16W
R828	1-218-933-11	RES-CHIP	22	5%	1/16W
R829	1-218-933-11	RES-CHIP	22	5%	1/16W
R832	1-218-990-11	SHORT CHIP	0		
R834	1-208-699-11	METAL CHIP	4.7K	0.5%	1/16W
R835	1-208-699-11	METAL CHIP	4.7K	0.5%	1/16W
R837	1-218-973-11	RES-CHIP	47K	5%	1/16W
R841	1-218-990-11	SHORT CHIP	0		
R844	1-218-990-11	SHORT CHIP	0		
R845	1-218-957-11	RES-CHIP	2.2K	5%	1/16W
R846	1-218-989-11	RES-CHIP	1M	5%	1/16W
R847	1-218-965-11	RES-CHIP	10K	5%	1/16W
R848	1-218-953-11	RES-CHIP	1K	5%	1/16W
R849	1-218-957-11	RES-CHIP	2.2K	5%	1/16W
R850	1-218-990-11	SHORT CHIP	0		
R852	1-218-977-11	RES-CHIP	100K	5%	1/16W
R853	1-218-977-11	RES-CHIP	100K	5%	1/16W
R854	1-218-990-11	SHORT CHIP	0		
R856	1-218-990-11	SHORT CHIP	0		
R857	1-218-969-11	RES-CHIP	22K	5%	1/16W
R871	1-216-864-11	METAL CHIP	0	5%	1/10W
R872	1-216-864-11	METAL CHIP	0	5%	1/10W
R873	1-216-864-11	METAL CHIP	0	5%	1/10W
R874	1-216-864-11	METAL CHIP	0	5%	1/10W
R875	1-216-864-11	METAL CHIP	0	5%	1/10W
R911	1-218-973-11	RES-CHIP	47K	5%	1/16W
R912	1-218-973-11	RES-CHIP	47K	5%	1/16W
R913	1-218-973-11	RES-CHIP	47K	5%	1/16W
R914	1-218-973-11	RES-CHIP	47K	5%	1/16W
R915	1-208-927-11	METAL CHIP	47K	0.5%	1/16W
R916	1-208-935-11	METAL CHIP	100K	0.5%	1/16W
R917	1-208-935-11	METAL CHIP	100K	0.5%	1/16W
R920	1-218-990-11	SHORT CHIP	0		
R921	1-218-985-11	RES-CHIP	470K	5%	1/16W
R922	1-218-977-11	RES-CHIP	100K	5%	1/16W
R923	1-218-981-11	RES-CHIP	220K	5%	1/16W
R924	1-218-985-11	RES-CHIP	470K	5%	1/16W
R925	1-208-707-11	METAL CHIP	10K	0.5%	1/16W
R931	1-218-957-11	RES-CHIP	2.2K	5%	1/16W
R932	1-218-989-11	RES-CHIP	1M	5%	1/16W
R933	1-218-957-11	RES-CHIP	2.2K	5%	1/16W
R934	1-218-989-11	RES-CHIP	1M	5%	1/16W
R943	1-218-961-11	RES-CHIP	4.7K	5%	1/16W
R944	1-218-961-11	RES-CHIP	4.7K	5%	1/16W
R951	1-208-911-11	METAL CHIP	10K	0.5%	1/16W
R952	1-208-911-11	METAL CHIP	10K	0.5%	1/16W
R953	1-208-887-11	METAL CHIP	1K	0.5%	1/16W
R954	1-208-927-11	METAL CHIP	47K	0.5%	1/16W
R955	1-208-935-11	METAL CHIP	100K	0.5%	1/16W
R956	1-218-985-11	METAL CHIP	470K	0.5%	1/16W
R957	1-218-941-11	RES-CHIP	100	5%	1/16W
R958	1-218-965-11	RES-CHIP	10K	5%	1/16W
R959	1-245-455-21	METAL	0.47	1%	1/5W
R961	1-218-973-11	RES-CHIP	47K	5%	1/16W
R962	1-218-977-11	RES-CHIP	100K	5%	1/16W
R963	1-218-965-11	RES-CHIP	10K	5%	1/16W
R964	1-245-454-21	METAL	0.022	1%	1/5W
R965	1-245-456-21	METAL	1	1%	1/5W
R967	1-208-855-11	METAL CHIP	47	0.5%	1/16W
R968	1-240-234-11	METAL CHIP	10	1%	1/4W
R969	1-218-957-11	RES-CHIP	2.2K	5%	1/16W
R970	1-218-961-11	RES-CHIP	4.7K	5%	1/16W
R971	1-218-990-11	SHORT CHIP	0		
R982	1-216-864-11	METAL CHIP	0	5%	1/10W
R983	1-216-864-11	METAL CHIP	0	5%	1/10W
R998	1-218-990-11	SHORT CHIP	0 (AEP, UK)		
R1024	1-244-161-11	RES-CHIP	2.2	5%	1/16W
R1025	1-218-945-11	RES-CHIP	220	5%	1/16W

Ref. No.	Part No.	Description	Remark
		< COMPOSITION CIRCUIT BLOCK >	
RB701	1-233-963-21	RES, NETWORK (CHIP TYPE) 2.2K	
RB702	1-233-967-11	RES, NETWORK (CHIP TYPE) 10K	
		< SWITCH >	
S801	1-771-806-61	SWITCH, PUSH (1 KEY) (HALF LOCK)	
S803	1-786-443-21	SWITCH, DETECTION (OPEN/CLOSE DETECT)	
S804	1-762-805-21	SWITCH, PUSH (1 KEY) (PROTECT DETECT)	
S805	1-771-806-61	SWITCH, PUSH (1 KEY) (RECHARGEABLE BATTERY IN DETECT)	
		< THERMISTOR >	
TH951	1-804-616-21	THERMISTOR, POSITIVE	
		< VIBRATOR >	
X801	1-795-830-21	VIBRATOR, CRYSTAL (22.5792MHz)	
X802	1-795-832-21	VIBRATOR, CERAMIC (48MHz)	
**********			
		MISCELLANEOUS	
		**********	
⚠160	X-3382-955-1	OP SERVICE ASSY (ABX-1R)	
M701	8-835-782-01	MOTOR, DC SSM18D/C-NP (SPINDLE)	
M702	8-835-779-01	MOTOR, DC SSM22A/C-NP (SLED)	
M703	1-477-519-11	MOTOR UNIT, DC (OVER WRITE HEAD UP/DOWN)	
**********			
		ACCESSORIES	
		**********	
⚠501	1-477-959-11	ADAPTOR, AC (AC-ES3010K) (AEP)	
⚠501	1-477-960-11	ADAPTOR, AC (AC-ES3010K) (E)	
⚠501	1-477-964-11	ADAPTOR, AC (AC-ES3010K) (UK, HK)	
502	X-3383-502-2	CHARGER ASSY (for BCA-AM14H)	
503	3-318-203-01	SCREW (B 1.7X6), TAPPING (for BCA-AM14H)	
⚠504	1-477-507-12	CHARGE UNIT (for BCA-AM14H)	
505	3-252-271-01	FOOT, RUBBER (for BCA-AM14H)	
506	1-542-529-12	HEADPHONE (HP-M170)	
507	1-477-744-12	REMOTE COMMANDER (RC-Z1C002)	
508	1-823-519-41	CORD, CONNECTION (DEDICATED USB CABLE)	
509	1-756-120-23	BATTERY, NICKEL HYDROGEN (NH-14WM)	
510	3-008-521-01	CASE, BATTERY CHARGE	
511	3-252-248-01	CASE, CARRYING	
512	1-251-895-11	BATTERY CASE	
513	3-252-648-11	CLIP (REMOTE CONTROL) (for RC-Z1C002)	
	3-253-758-12	SOFT (CD-ROM), APPLICATION (SonicStage Ver 1.5.53) (AEP, UK)	
	3-253-758-21	SOFT (CD-ROM), APPLICATION (SonicStage Ver 1.5.53) (E, HK)	
	3-253-939-11	MANUAL, INSTRUCTION (ENGLISH)	
	3-253-939-21	MANUAL, INSTRUCTION (FRENCH) (AEP)	
	3-253-939-31	MANUAL, INSTRUCTION (GERMAN) (AEP)	
	3-253-939-41	MANUAL, INSTRUCTION (SPANISH) (AEP)	
	3-253-939-51	MANUAL, INSTRUCTION (ITALIAN) (AEP)	



The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

REVISION HISTORY

Clicking the version allows you to jump to the revised page.
Also, clicking the version at the upper right on the revised page allows you to jump to the next revised page.

Ver.	Date	Description of Revision
1.0	2003.07	New
1.1	2003.08	Addition of E and Hong Kong Models (ENG-03045)